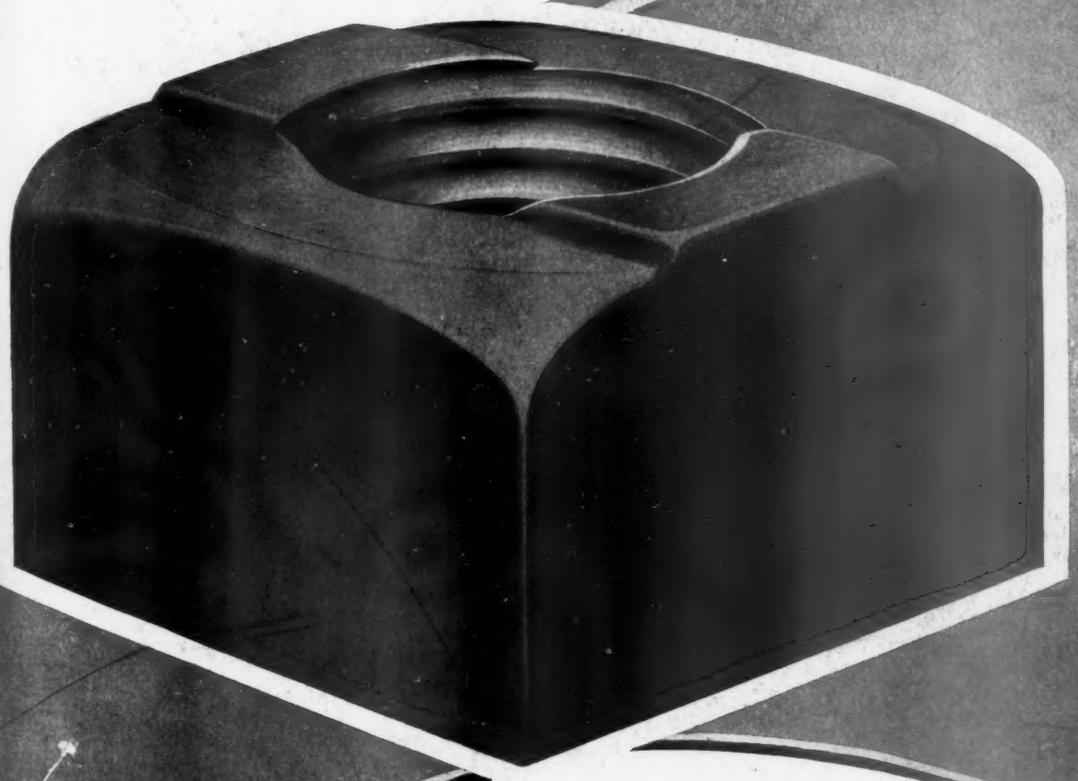
Railway Age

SECOND HALF OF 1920—NO. 26 NEW YORK—DECEMBER 24, 1920—CHICAGO SIXTY-FIFTH YEAR



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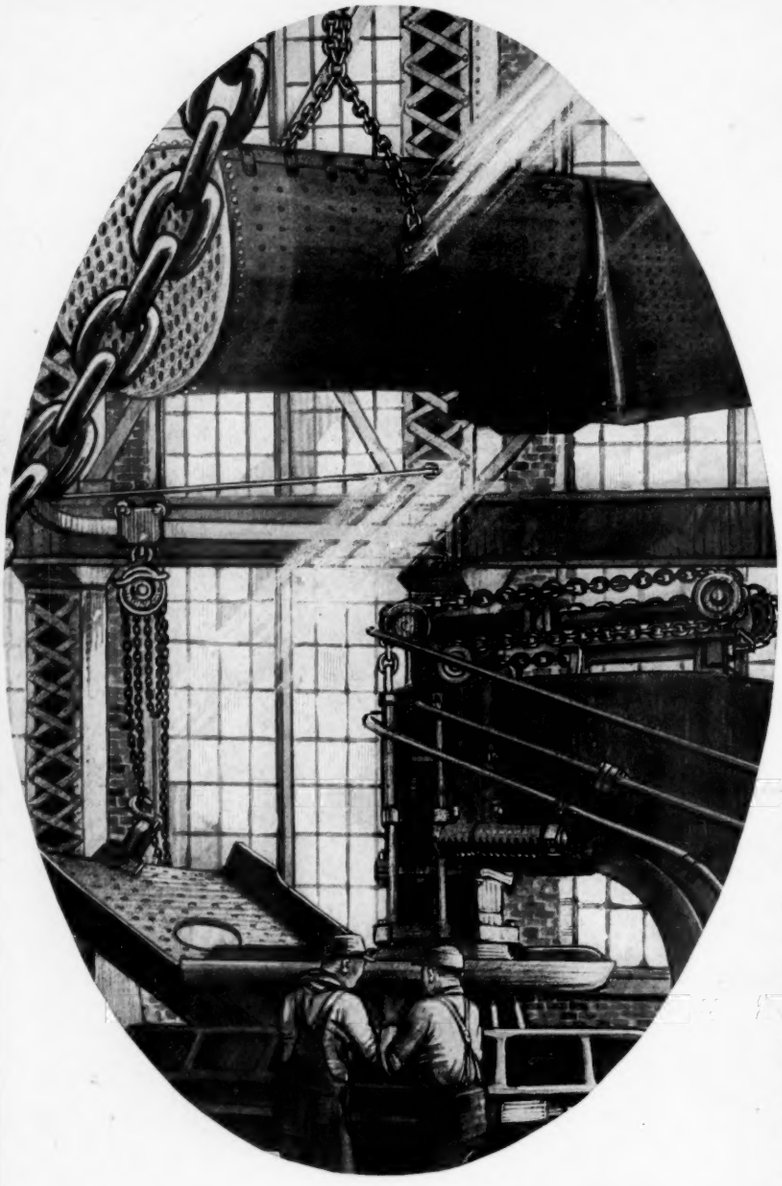

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LARGEST MANUFACTURERS OF RAILWAY CHAINS IN THE WORLD

Vol. 69 No. 26

Published weekly by Simmons-Boardman Pub. Co., Woolworth Bldg., New York, N. Y. Subscription Price U. S., Canada and Mexico, $8.00, foreign countries (excepting daily editions), $10.00; single copies, 25c. Entered as second-class matter, January 30, 1918, at the post office at New York, N. Y., under the act of March 3, 1879.

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EDITORIAL

Railway Age

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A New Argument for Reclamation

The success of all efforts to obtain savings through reclamation is determined largely by the spread between the scrap value of the released article and the cost of a new one to replace it. During the war and again during much of the past year reclamation was of increased significance, for at times it became practically a necessity owing to the extreme difficulty of obtaining certain manufactured goods at any price. This situation, of course, is now relieved and the weakening of prices might lead to the assumption that reclamation is of less importance. But a new factor has been introduced, namely, the present low price of scrap. While nearly all iron and steel products have decreased in price, the reductions are small as compared with those taking place in most scrap items. Consequently, the sale of almost any released material at present scrap prices involves a distinct sacrifice.

Motor Trucks For Handling Company Materials

We have referred in recent issues to the possibilities for the use of motor trucks in the handling of less than car load freight in interchange between the railroads and between outlying freight stations and central points of assembly on the same road. There is a further opportunity for the use of these trucks in the handling of company materials about terminals of large or medium size. Owing to the congestion prevailing in terminals, to the frequent shortage of cars and to the heavy expense of switching cars from one point to another in a large and busy terminal, a number of roads are now installing motor trucks at such points to deliver materials from local storehouses to the points where they are needed by the gangs. Not only does this effect a distinct saving in cost, but it greatly expedites the delivery of the materials, a point of importance in keeping gangs busy. Most bridge, building and track supervisors located in terminals of any considerable size can show excellent returns from such use of a truck. Closely allied with the handling of company materials about a terminal is the transference of supplies about a divisional or central store yard. As indicative of the possibilities for using motor trucks in this service, one western road, when rebuilding its central storehouse, laid out an extended system of concrete roadways on which motor trucks are used to transport materials from one place to another.

Delays and Their Explanation

The Delaware, Lackawanna & Western suburban service out of Hoboken, N. J., handles about 20,000,000 passengers yearly. The larger part of this service is handled over two tracks to Harrison and Newark, the first stations west of Hoboken, and respectively seven and eight miles distant. The unfortunate feature is that this line crosses two rivers, the Hackensack and Passaic, both of which are comparatively busy streams, necessitating frequent movements of the drawbridges. The result of this situation is that sometimes in the rush hours the service becomes somewhat erratic and erratic service simply does not appeal to commuters, even if they do ride in electric-lighted steel cars and seldom fail to secure seats. The road has recently adopted a policy of taking its commuters into its confidence. For example, passengers found in their seats on the evening of December 15 last, a leaflet reading as follows:

DELAY TO SUBURBAN TRAINS

The serious delay to certain westbound trains which occurred on *Tuesday evening, December* 14, was occasioned by a *broken rail* on the west bound track at Sanford's Crossing (about one mile and a half west of the Hackensack River).

The first train affected was No. 231, leaving Hoboken at 5.15 p. m., which was delayed eight minutes at Sanford's Crossing and was then allowed to proceed slowly over break, as were several trains following, after which, as it was considered unsafe for further trains to so proceed, it was necessary to divert them to the slow-speed freight track running from the Hackensack River to Harrison Tower.

This caused serious delays to all trains following, up to and including train leaving Hoboken at 7.20 p. m., the necessary repairs having been made as quickly as possible.

This idea has been found to appeal greatly to the Lackawanna's patrons, for it has been regarded as a real manifestation that the road is proud of its suburban service and is showing in a concrete way that it has at heart the comfort and convenience of its patrons. Obviously the issuance of circulars of this kind does not improve the service or help materially in keeping it up to its desired standard of perfection. Nevertheless, the idea is a good one and a real creator of good will in a situation that could be quite fruitful in causing friction.

A Difficult Feat of Bridge Engineering

On another page of this issue we present an account of a complicated bridge transfer carried out successfully on the Baltimore & Ohio crossing of the Allegheny river at Pittsburgh, Pa. This operation involved not only the common sidewise shifting to replace old spans by new ones built alongside, but it also required one new span of 1,200-tons weight to be jacked up 15 ft. The rolling operation has been repeated so often that it has become a relatively simple matter. Dynamometer tests made by bridge erectors during earlier operations of a similar nature have given them rather definite information on the rolling friction obtained when moving these large loads and also on the mechanical efficiency of wire rope tackles of many parts so that it is now possible to calculate very closely how much hoisting engine power is required. There has been much less experience with jacking. It is also a much more cumbersome operation. Unlike the hauling with wire rope tackle, the jacking is an intermittent process since the distance that a jack may be extended is a matter of inches rather than feet. Consequently, frequent resettings of the jacks are necessary and this means that much time is expended in building up temporary supports for the jacks as the load is raised. Moreover, the load must be safeguarded at all times against failure of any part of the hydraulic system which furnishes the power for the lifting process. This is an entirely different condition from that imposed in the rolling operation. In the event of a break in the pulling tackle for the latter, all that occurs is that the movement

stops, while if any part of the jacking apparatus should fail, the load would drop if it were not for the temporary blocking that is built up to provide for such a contingency. Thus, it is seen that the lifting of heavy bridge structures is a very laborious and time-consuming process, entailing a considerable interruption in the use of the bridge. For this reason the lifting of bridge spans is undertaken only when absolutely necessary, as in the case of the bridge at Pittsburgh, where requirements of the United States War Department made it necessary to develop a most intricate erection program.

The Full-Jeweled Locomotive

Nothing could be more obvious than the statement quoted elsewhere in this issue to the effect that the application to locomotives of various efficiency and capacity increasing devices represented nothing in itself. The value of these appliances is wholly dependent upon the degree of intelligence with which they are operated and the care exercised in their maintenance. It is conceivable that every one of the specialties designed to increase locomotive efficiency and capacity would become a positive detriment if not properly maintained but, on the other hand, each one of the devices that contribute toward making the locomotive a "full-jeweled movement" will earn a large return upon its cost if properly handled and adequately maintained. Thus the problem of modernizing old locomotives by equipping them with efficiency and capacity increasing devices is closely linked to the problem of providing suitable facilities for the maintenance of these devices. This implies up-to-date locomotive terminals, and conversely, the full value of an investment in terminal improvements can never be realized until the locomotives handled through this terminal are equipped with the most modern appliances. What is needed is a consistent policy toward both terminal development and modernized locomotives. Considered in connection with the so-called "full-jeweled" locomotive, consistency is indeed a rare jewel.

Economy of Repairing Cars Now

The importance of each railroad putting its own freight cars in the best possible condition of repair while the cars are on the home lines was brought out very forcefully in an investigation of adjustment allowances for maintenance during the guaranty period conducted by a sub-committee of the adjustment committee for the carriers under federal operation. Assuming the cost of repairs to be unity if 100 per cent of the freight equipment of the country were on home rails, the findings of the committee indicate an accelerating increase in the average annual cost of maintenance as a progressively decreasing percentage of the equipment is on the home line. This is not entirely due to the greater cost of doing the work on foreign cars, but in a measure to the patchwork method of deferring necessary heavy repairs until the car reaches home or can no longer be made safe for movement. When 50 per cent of the cars are at home, as was the case under pre-war normal conditions, the average maintenance cost is shown as 121 per cent of the ideal. Coming down to 21.9 per cent at home, the condition at the time the roads were returned to private operation, the average cost has increased to over 149 per cent of the ideal, or an increase of about 23 per cent as compared with normal conditions. Again, comparing March 1 with November 15, the latest date for which figures are available, when 32.5 per cent of the equipment was on home roads, the average cost of freight car maintenance is shown to be about 137 per cent of the ideal or a proportional decrease of 8 per cent. With the depleted supply of equipment, it is doubtful whether it will be possible to maintain the present favorable percentage of cars on home lines should there be the marked increase in the volume of traffic generally expected within the next few months. The economy of pushing heavy repair work at the present time while so many cars are on home lines, is therefore very evident.

One Way to Expedite Car Movement

Although there is now a supply of cars sufficient to meet the needs of shippers in practically all parts of the country, railway men should not lose sight of those methods of expediting car movement which recent experiences proved to be meritorious. They should also bear in mind that the responsibility for the full execution of these movements does not rest solely with the shippers, for frequently co-operation on the part of the road's officers may help greatly, even in the unloading and loading of cars on shippers' tracks. Typical of such measures is a plan which was inaugurated on the Northern Pacific recently to give consignees and shippers advance notice of the arrival of loaded and empty cars. In the working out of this plan the yardmaster delivers to the despatcher or to the operator at the yard office a consist of way freight trains showing the number, contents, consignee and destination of each car consigned to points on the division, as well as a list of the empty cars to be set out. The operator then calls each station in turn, giving the agent a list of the cars for his station, and the agent in turn transmits this information promptly to consignees and shippers. With this advance information the agent is enabled to ascertain where the consignee wants his cars placed and the consignee is enabled to have his unloading force ready to unload a car when it arrives. With empty cars the agent is able to make his distribution and to deliver a switch list to the conductor immediately on the arrival of the train, while the shipper himself is enabled to have his loading organization ready to begin the loading of the car as soon as placed. In numerous instances the agent has taken advantage of this plan to the extent of notifying a shipper who is waiting for a car that he may have for outbound loading a car which is coming in under load for a certain consignee on that day. The shipper then brings pressure to bear on the consignee to unload the car as quickly as possible in order that he in turn may be able to load it. While this arrangement might appear to involve a large amount of additional work, it has been found that the additional work is practically negligible. Measures such as this can well be continued during these times of car surplus, for the habits thus acquired will be of particular value when cars are at a premium and every hour's delay needs to be avoided.

The New England Situation

The New England carriers and the trunk line railroads were unable to get together on the division of rates and the question was carried before the Interstate Commerce Commission in formal hearings last week in Washington. The situation that confronts the New England roads is a serious one. It is serious enough to the holders of the common stock of the Boston & Maine and New Haven, who have been without dividends since 1913. It is equally serious to the banks and insurance companies who hold the bonds of these and the other New England roads. It is, however, most serious to the industries of New England which are confronted with the fact that the financial situation of the roads in their territory is becoming such that they are unable to make large ex-

penditures for improved railroad facilities necessary for a region of such intensive industrial development. The New England carriers are handicapped in many ways. Among these are the high cost of coal, the short hauls, many branch lines, diffusion of traffic, etc. More especially, they are handicapped because they are terminal roads and have high terminal costs which they are unable to compensate for by a long haul over their lines. This handicap affects them in several ways, not the least of which is per diem, for with so much delay for loading and unloading cars by shippers, they are unable to release cars as promptly as their connections to the west. These carriers are now asking for larger divisions of their through rates. They are presenting the arguments already mentioned as justification. They are also pointing out that in the recent rate case their valuation was included in the total valuation on which the increase of 40 per cent was figured for the trunk line roads, but they contend that they have themselves not received the share of the increase to which this inclusion of their value in the eastern group entitled them. The case is especially interesting in view of the fact that it is the first case in which such a large group has come before the commission in an appeal for larger divisions. The New England roads have much in favor of their argument and whether it is settled as they wish it to be or not it is evident that something must be done and done quickly, to the end that the industries of New England can have the transportation service to which their importance to the rest of the country entitles them.

Elimination of Train Orders Will Accomplish Saving

A MATERIAL SAVING in the running time of trains may be accomplished on many roads at present equipped with automatic signals if operating officers will take advantage of the possibilities of the signal system to eliminate a large number of the train orders issued and will operate trains by signal indication. An analysis of all orders carried over from the preceding day, and those issued during 24 hours, including the effective, annulled, and superseded orders on a typical operating division, will indicate how great a loss of running time occurs in the handling of these orders.

One road found on making such an analysis for one day on a typical division with 12 passenger trains, 2 way freight trains and 17 other freight trains, that 139 orders were in effect during the 24 hours, of which 124 were "31" orders. On that day there was a total station delay of 78 hr. 4 min. for freight trains, exclusive of the way freights, a considerable part of which was due to the issuing of orders, and it was estimated that an average of 10 min. per "31" form order was a very modest allowance for time lost.

Another road which has practically eliminated the "31" order in signaled territory has reduced these orders by about 100 daily on a division having about the same number of trains as indicated above. In reducing the number of stops of freight trains it was estimated that an average of 15 min. delay is saved in stopping and starting, while engine and equipment trouble was reduced approximately 6 per cent; coupler trouble about 16 per cent; and tieups for the 16 hr. law about 25 per cent. Train movements were scheduled about 10 per cent, while a material saving in coal was made.

At the present time when it is so desirable to decrease expenses and at the same time increase operating efficiency with the existing plant and equipment an analysis of the unnecessary time lost in the delivery of orders should help materially in maintaining an average of 12.5 min. per hr. for freight trains by getting all possible service from the signal system, which makes possible the elimination of Form B orders directing a train to pass or run ahead of another train; Form D-E, time orders; Form G, extra trains (on double track), and Form J, holding orders.

The Decline in Freight Business

THE DECLINE in the movement of freight which has occurred since the highest record was made in October has been quite large, but the total amount of freight handled continued, down to the last week for which information is available, to be larger than in any former year. The number of cars loaded in the four weeks ending October 23 was 4,002,347. The number of cars loaded in the four weeks ending on December 11, the latest period for which figures are available, was 3,385,260. This shows a decline, as compared with the four weeks ending October 23, of 617,087 carloads. While this reflects a sharp decline in traffic, the figures for the four weeks ending December 11 compare very favorably with those of the corresponding weeks of 1918, when the largest record for the same weeks of any previous year was made. In these weeks of 1918 the number of cars loaded was 3,251,011, or 134,249 less than in the four weeks ending December 11. Since the average load being handled per car is larger than it was in 1918, the total tonnage being handled is substantially larger.

The traffic which is causing the total loadings to hold up so well in spite of the recent sharp decline in general business activity is the coal traffic, a larger amount of which is being moved than at the same time in any past year. The fact, however, that in spite of the general decline in business activity which has occurred within recent months the railways are still moving more tonnage than ever before at the same time of year, probably has a significance of much importance. It undoubtedly means that the producing and consuming capacity of the country has increased so much within recent years that no decline in business activity will ever again carry the total freight business of the railways down as low as it used to go. By the same token a revival of business activity will result in giving the railways a much larger freight traffic to handle than they ever had before. This is a strong argument for shippers who can ship now, while the railways have surplus capacity, to do so, for it must mean that when business activity again revives the difficulty of getting sufficient transportation will return. It also seems to suggest something of great importance to the railways, and this is that they should spare no reasonable effort to get their equipment and other facilities ready to cope with a larger traffic than they ever have had to handle.

Need for Increased Locomotive Efficiency

NEVER BEFORE did conditions on the railroads demand so imperatively as now that locomotives shall be put and kept in the highest state of efficiency and so operated as to get from them the best and the most service they can be made to render. The conditions which create this necessity are numerous, but there are three of special importance. One is the present high cost of new locomotives. Another is the high cost of fuel. Another is the fact that the railways must pay punitive overtime to all employees in freight train service when trains fail to make an average speed of twelve and a half miles an hour.

The fact that new locomotives now cost so much more than before the war makes the problem of determining when an old locomotive shall be scrapped, and a new one bought to replace it, a very different one from what it used to be. It has made the fixed charges upon the capital invested in a new locomotive much higher compared with the cost of improving and maintaining an old locomotive than they formerly were. If, however, old locomotives which formerly would have been scrapped are to be kept in service they must have improvements made in their equipment that for-

merly would not have been made, and they must be better maintained than they formerly would have been, or they will not be able to render the service in producing train miles and ton miles which, from an operating and financial standpoint, will justify their use.

Furthermore, if the greatest practicable efficiency in producing ton miles and train miles is to be obtained from locomotives, whether new or old, facilities must be provided for turning and repairing them which will keep them actually handling traffic just as much of the time as possible. The true test of the efficiency of a locomotive as an operating mechanism is not merely how many tons it hauls in a train, but also how many times it actually hauls trains in a month and in a year. The purpose of a freight locomotive, like that of a freight car, is to produce ton miles, and it is not producing ton miles when it is not actually working. Nobody can study the statistics upon the subject without being convinced that on a large majority of railways the facilities for handling power are so inadequate that locomotives are being prevented from producing monthly and annually anywhere near as many revenue earning ton miles as they could be made to produce.

The statistics of the Interstate Commerce Commission show that the average cost per ton of the coal used by the railways was 46 per cent greater in September, 1920, than in September, 1919. The amount of coal consumed in that month in freight service apparently was only a little larger than in September, 1919, but it cost $12,960,000 more. Apparently the total increase in the cost of the coal used in passenger service was $2,510,465, and the total increase in the cost of coal consumed in road service by both freight and passenger trains, $14,663,582. This is at the rate of almost $180,000,000 a year. It need hardly be added that even before September, 1919, there had been since before the war a large increase in the cost of fuel. These figures emphasize with the greatest force the necessity for the adoption of better methods of supervision, and the installation of better devices on locomotives, for the saving of fuel. A very great deal has been done within recent years to so improve the construction and equipment of locomotives, and the supervision of their operation, as to increase economy in the use of fuel. The amount of fuel consumed per freight train mile in September, 1920, was, however, almost the same as in September, 1919. The facts argue conclusively for greater efforts to economize in the use of fuel. Since for years to come most of the fuel consumed will be used in the locomotives that are now in service, most of the economies in its use for many years to come must be obtained through the improvement, maintenance and operation of existing locomotives.

The amount of punitive overtime which must be paid to employees in train service is so large that the problem of handling freight with the utmost economy is no longer mainly that of increasing freight trainloads as much as practicable. It has become, also, in very large measure, the problem of getting trains over the road at an average speed of not less than twelve and a half miles an hour. In other words, the problem of today is that of both increasing trainloads and maintaining and increasing train speeds. There are many factors in this problem of maintaining and increasing the average speed of heavily loaded trains, but one of the most important is that of so improving locomotives, and keeping them in such condition, that they can make better average speeds. It is hardly necessary to say that the strain imposed upon a given locomotive which hauls a trainload of a given amount so that it will cover 100 miles in eight hours is, under any set of conditions, much greater than the strain imposed upon it in hauling the same trainload the same distance in ten or twelve hours. But when punitive overtime has to be paid to a crew after eight hours the difference in the operating cost of getting the train over the road in eight hours, and in ten or twelve hours, is large; and the way the locomotive is equipped and maintained may, and often does, determine whether the cost of running the train will be based on the making of an average speed of twelve and a half miles an hour, or of only ten miles or eight miles.

Much has been said recently about the increases the railways have made in the efficiency with which they have used their freight cars. But their success during the last year in handling a record-breaking traffic, in spite of an actual reduction in the number of freight cars, could not have been achieved without an increase in locomotive efficiency, for, after all, it is the locomotives with which they switch cars and make up and move trains. Probably there is nothing else the managements of the railways could do which would contribute more toward enabling them to handle the largely increased traffic which is bound to come within a few months with greatly increased economy than to devote more study and larger expenditures to improving the equipment and the condition of their locomotives, and to improving and enlarging the facilities for turning, repairing and maintaining them.

Southern Railway

AN ANNUAL REPORT of the Southern Railway from the pen of President Fairfax Harrison is always interesting. The report for 1919 is particularly so for it was written after the termination of the guarantee period, and President Harrison reviews the controversy between the corporate officers of the company and the Railroad Administration. This controversy was one of the most acute which developed during federal control. It had its inception when the Railroad Administration took over the Southern general office building in Washington for its headquarters; it was intensified by the failure to reach an agreement as to compensation, and it continues today in respect to claims of the road against the government aggregating $84,700,000, against which the government has set up claims aggregating $71,650,000.

At the time the government took over the railways the Southern was completing the reconstruction and double tracking of its main line from Washington to Atlanta at a cost of over $52,000,000. An aggressive campaign for the development of traffic, combined with the increased capacity which this and other improvements made possible, was resulting in large increases in gross and net revenues. Neither of these conditions was reflected fully in the average annual railway operating income for the test period which was ascertained by the Interstate Commerce Commission to be $18,653,893 for the Southern proper. The company therefore made application for additional compensation to the amount of $4,771,399 per annum. In reply, the government offered to allow additional sums of $203,166 for 1918, $439,655 for 1919, and at the annual rate of $521,250 for 1920. This the railway company considered inadequate and it therefore refused to sign the standard contract, preferring to assert its claim in the manner provided in the Federal Control act. It is interesting to note in this connection that the Southern Railway earned $10,695,890 in excess of its standard return in 1918.

In view of the company's refusal to accept the compensation offered by the Railroad Administration during the period of federal control, it is not surprising that it decided to resume the operation of its property on March 1 without accepting a continuance of the guarantee. The directors adhered to their conviction that "the amount guaranteed by the government was not a fair measure of compensation for the use of the property; they believed that the revenue re-

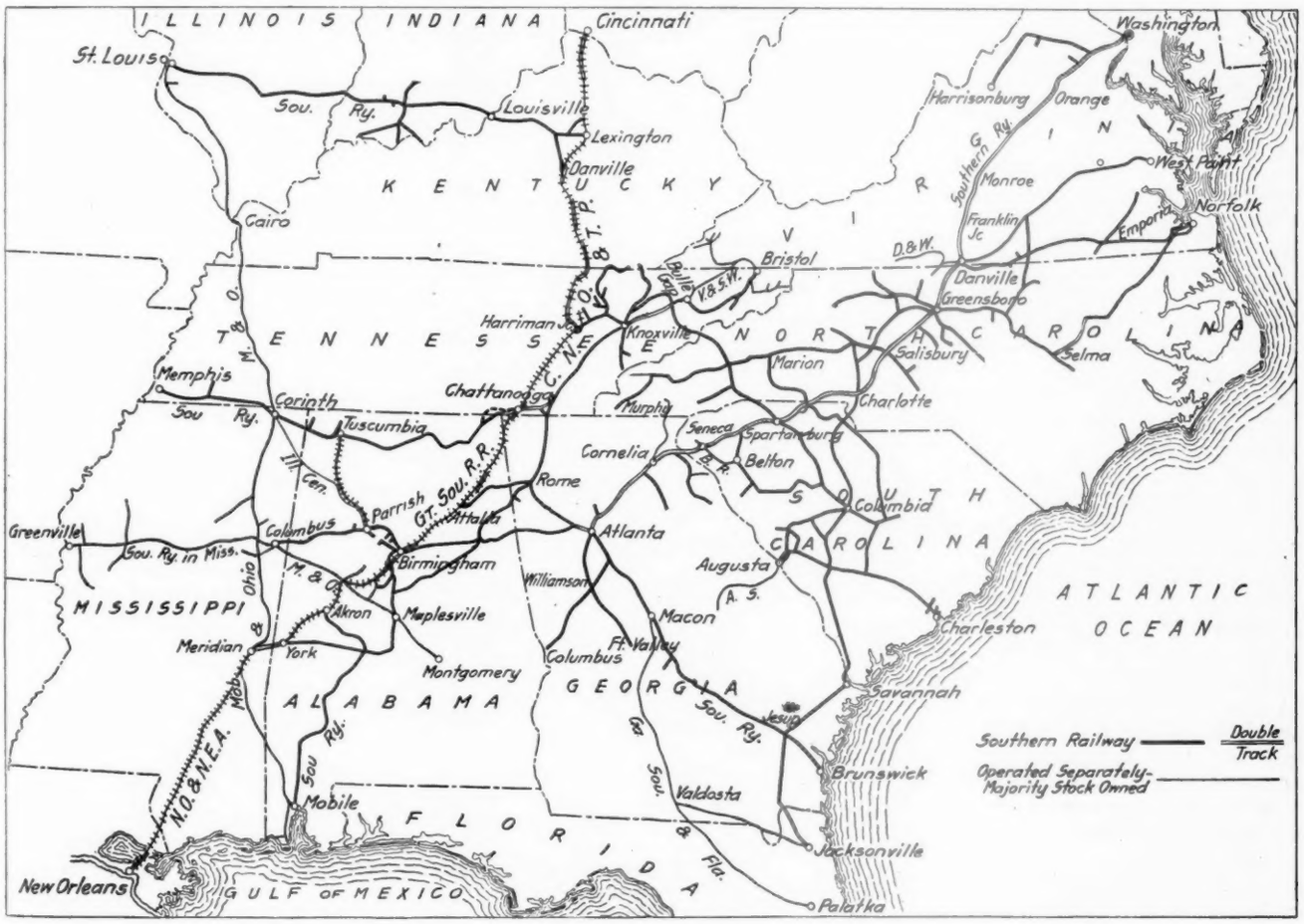
sulting from the prosperous business of the South, together with an intelligent control of expenses, might yield as much or more net income, and they were convinced that the advantages to be derived through stimulating with a sense of responsibility the efforts of the working organization toward getting business and handling it efficiently and economically fully justified the assumption of whatever business risks might be involved."

Three of the other constituent properties of the Southern Railway system, the Cincinnati, New Orleans & Texas Pacific, the Alabama Great Southern, and the New Orleans & Northeastern made the same decision. Although these properties were turned back to their owners with an empty treasury, so that they were compelled to earn their first payroll due four weeks later, this "adventure in self-reliance," as President Harrison terms it, was justified as is shown by the following statistics regarding the railway operating income earned by the system in the six months ending August 31, 1920:

	Less than guarantee	More than guarantee
Southern	$712,492	.....
C., N. O. & T. P.	.....	$563,260
A. G. S.	.....	533,267
N. O. & N. E.	.....	258,048
Excess above the guarantee for the system..		$642,078

Special interest attaches to these figures because the Southern was the largest road to reject the guarantee. This showing was made after paying approximately $4,195,000 in increased wages under the ruling of the Labor Board on July 20, and without any compensating increase in rates. While the Southern was not affected directly by the switchmen's strike, except at St. Louis and Cincinnati, it was hard hit by the inability of other roads to accept freight from it. The coal shortage also increased its operating costs sharply, as it was forced to confiscate large quantities of coal at prevailing high prices as late as November. Nevertheless, the railway operating income of the Southern proper was $3,449,734 greater than from the government operation of the same lines in the corresponding months of 1919 and it earned its preferred stock dividend for the period.

Referring to the operations during 1919, the railroad did not do as much business, either freight or passenger, as in 1918, the ton miles of revenue freight, totaling 6,303,441,042, representing a decrease of 12.87 per cent from 1918, and the passenger miles handled aggregating 1,361,153,876, a decrease of 14.69 per cent. The freight revenue was $81,811,428, an increase of 7.39 per cent, and the passenger train revenue aggregated $42,302,970, a decrease of 7.82 per cent. Operating expenses increased from $91,801,425 to $113,744,813, leaving a net railway operating income of $10,611,610, as compared with $29,291,869 for the previous year and with the certified standard return of $18,653,893.



The Southern Railway System

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In an operating way a particularly creditable performance was made in 1919. In the face of a decline in freight traffic of 12.87 per cent the average revenue train load was increased from 399.09 to 446.10, or 11.78 per cent, while the average number of loaded cars in each train was increased 23 per cent and the average number of empty cars decreased 4.56 per cent.

The Southern did not add to its equipment in 1919; in fact, there was a slight decrease in freight equipment. It

did, however, accept 96 locomotives and 2,000 coal cars which were purchased by the government and allotted to it and which "have been, since they were delivered, an essential element of operating strength." President Harrison further states that "the management would welcome now a much larger addition to equipment, but the current business situation, meaning the high manufacturing cost, the prohibitive cost of capital, the unsettled state of accounts with the government, and the uncertainty of the effect of the new rates, has not yet justified a commitment in that respect." In common with other roads the termination of federal control left the Southern's equipment in a deteriorated condition, and while it has prosecuted the work of rehabilitation actively, a large amount of its equipment was scattered over foreign lines and has not reached home. The statement is further made that "in roadway there was a conspicuous lack of rail and tie renewals but when this is stated it is fair to add that the roadway of the busy main lines on which the maintenance efforts had been concentrated remained in good condition."

One of the characteristic features of President Harrison's reports of the Southern in recent years has been his optimism regarding the industrial and agricultural development of the portions of the South served by that system. This year's report is no exception in this respect. It is pointed out that the number of new industrial establishments now in course of construction, including additions to enterprises already in operation, is greater than at any time in the history of the South, 508 new industries being completed and put in operation along the line of the Southern Railway system and 294 industries being enlarged during 1919 and the first six months of 1920. Capital to the amount of $225,816,000 was invested in new industries and in the extension of old enterprises in this territory during the three years from July 1, 1917, to June 30, 1920, and the estimated cost of plants under construction on the latter date was $153,165,000. The importance of this growth is indicated by the fact that a single important industry, which it was estimated in the annual report for 1907 would yield the railway freight revenues of $500,000 per annum, is now paying it for freight transportation at the rate of $1,200,000 per annum, and the traffic handled for it in 1919 amounted to 24,132 car loads.

This industrial development is characterized principally by a movement toward the complete conversion of raw materials into finished articles. Thus, while but 528,895 bales of cotton were consumed by Southern mills in 1890, they consumed 3,491,000 bales of cotton in 1919. Again, the production of pig iron in the South in 1919 was 2,321,000 gross tons, an increase of 86 per cent over 1890, while over 50 per cent of the production in 1919 was converted in the South into a large variety of finished articles as compared with only 20 per cent in 1890.

With industrial development such as this, and the double track between Washington and Atlanta in operation, which "has materially enlarged the capacity of the plant, the benefit of which is now felt more than ever before as is evidenced by the fact that since March 1 the company has handled a larger traffic than at any other time in its history," the outlook for the Southern is bright. This is particularly shown to be so by the fact that none of the advances in rates are reflected in the return for the guarantee period.

In commenting on the advances in rates, President Harrison states that "It is futile to attempt at this time a prediction of future net income under the present scales of rates and wages. Only experience under the new order of things can determine what will be the effect upon the divisible income, but we face the future with courage and with confidence."

Mention has been made above that the standard return for the Southern railway in 1919 was $18,653,893, which is the same amount given in the report as for 1918. The total corporate income was $20,884,020, as compared with $20,832,627 in 1918. The amount of $15,742,453 was deducted for interest, rentals and other charges, leaving a balance of income over charges of $5,141,567, as compared with $5,708,913 in 1918. The same dividends were paid in 1919 as in 1918; namely, $3,000,000, or 5 per cent, on the preferred stock. The surplus for the year was $2,137,260 in 1919 as against $2,700,205 in 1918, the decrease being represented chiefly by an increase of $626,689 in interest paid on unfunded debt; namely, on interest bearing obligations required of the company by the director-general of railroads and the War Finance Corporation in return for funds applied toward the payment of fixed charges during the period of federal operation.

The following table shows the principal figures for operation under the government in 1919 and 1918:

	1919	1918
Mileage operated	7,102	7,102
Freight revenue	$81,811,428	$76,183,282
Passenger revenue	42,302,970	45,891,606
Total operating revenues	129,787,812	126,574,297
Maintenance of way and structures	24,169,452	13,568,311
Maintenance of equipment	27,467,881	24,570,010
Traffic expenses	1,554,890	1,493,452
Transportation expenses	56,335,718	48,772,492
General expenses	3,285,091	2,659,714
Total operating expenses	113,744,813	91,810,425
Taxes	4,042,116	3,742,144
Net railway operating income	10,611,610	29,291,809

Praise for Our "Ship Now!"

CLEVELAND.

TO THE EDITOR:

Permit me to congratulate you on your editorial, "Ship Now," in your December 10 issue.

The shortsightedness of American business in the aggregate is amazing. We will pass through a period of congestion such as we have had during the present year and which has undoubtedly cost the country hundreds of millions of dollars, and yet make little or no change in our business methods which would prevent a repetition of the same thing occurring another year, and it is constructive editorials such as yours which make us think and which will help us avoid further pitfalls.

CHARLES F. LANG,
President, The Lakewood Engineering Co.

New Books

Annual Statistical Report, American Iron and Steel Institute for 1919, 6 *in. by* 9 *in., 96 pages, bound in cloth, published by the American Iron and Steel Institute, 61 Broadway, New York City.*

This book is a most complete compilation of iron and steel statistics of production, consumption, exports and imports, with a brief summary of prices. It covers the basic materials, pig iron and steel ingots and the principal classes of products, such as steel rails, plates, structural shapes, wire rods etc. Some of this information, as for instance the production of steel rails, has appeared in advance bulletins issued during the year, abstracts of which have been published in these columns. One table in this volume gives the approximate consumption of rails in the United States based on calculations made from figures on production, imports and exports. According to these figures the consumption in 1919 was only 1,568,402 tons, as compared with 3,052,635 tons in 1913 and 3,654,794 in 1915.

THE EXPORTS OF OIL from Mexico in the first six months of the calendar year 1920 reached nearly 60,000,000 barrels, representing an increase of 72 per cent over the exports in 1919.

Before the Final Shift—the 434-ft. Span on the Left—the 261-ft. Span on the Right

Complex Bridge Transfer Successfully Completed

A 3,200-Ton Span Rolled 38½ Ft. and a 1,200-Ton Span Raised 15 Ft. During Interruption to Traffic

LAST MONDAY the Baltimore & Ohio successfully transferred traffic from its old Allegheny river bridge at Pittsburgh, Pa., to new spans at the same site by one of the most complex bridge span shifting operations ever attempted during an interruption of traffic. The loads were not as great as those involved in the transfer completed in the Union Pacific bridge at Omaha, or the Allegheny river bridge of the Bessemer & Lake Erie, but the restoration of traffic in this case was contingent upon the successful completion of such a number of diversified operations that the successful outcome of the transfer marks a noteworthy accomplishment in bridge engineering.

This work comprises a most important step in the replacement of a bridge built in 1884 by the Pittsburgh Junction Railroad, now a link in the Baltimore & Ohio's New York-Chicago line. The old bridge was designed by Theodore Cooper and consisted of four through-truss, double-track spans varying in length from 167 to 250 ft. and crossing the river on a skew of 75 deg.

On the east or Pittsburgh end, this bridge has a long steel viaduct approach occupying Thirty-third street, while on the west end there is a long curved approach consisting of several deck girders and a through-truss span on a sharp skew across the back channel of the river. Inadequacy of load carrying capacity in spite of extensive reinforcement necessitated the renewal of the entire old bridge with the exception of the east approach, which had been rebuilt several years ago. The character of the new structure is shown in the general plan and profile.*

Had this project involved simply a replacement by a structure of identical outline but of larger loading capacity, the engineering problems involved would have been relatively simple, but in accordance with the policy laid down by the United States War Department, the railroad was required to build a new bridge affording greatly increased waterway provisions. This necessitated main river spans of 434 ft. and 261 ft., respectively, as well as an increased head room above the pool level of 8.4 ft. On account of the deeper floor of a new bridge and other considerations, the actual raise in grade was considerably more than this. The position and length of these spans was such as to necessitate

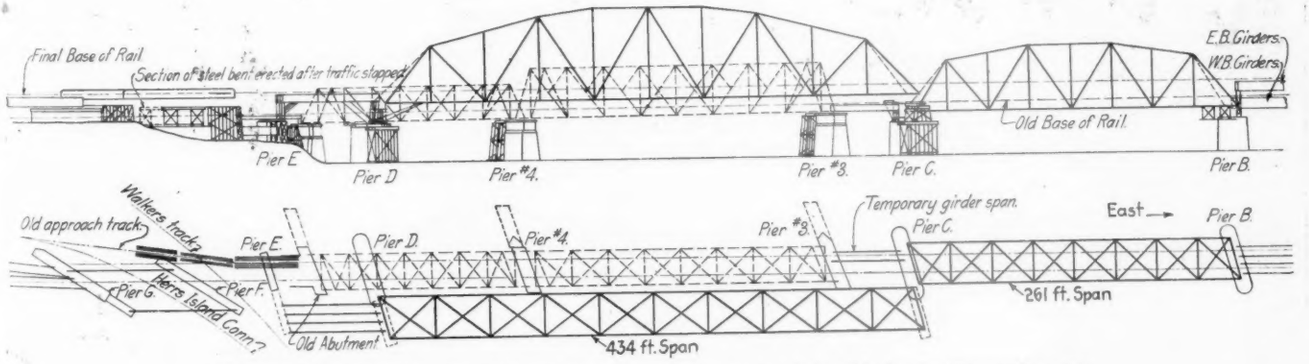


Diagram Illustrating Conditions Just Previous to the Shift Made on December 19

*A general description of the new bridge with an account of the construction of the substructure was given in an article by H. A. Lane, chief engineer of the Baltimore & Ohio, appearing in the *Railway Age* of May 28, 1920, page 1504.

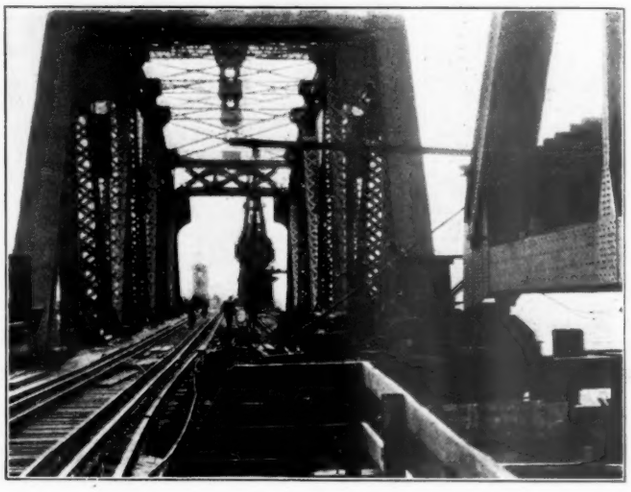
an entirely new substructure and owing to the prohibitive cost of a new right-of-way for the Pittsburgh approach, the plan was definitely committed to the use of the original center line for the new bridge. This condition, together with the raise of grade, imposed a complex problem not only in the main spans but also in the approaches. This had been anticipated in the reconstruction of the steel viaduct of the east approach in 1916 which was fabricated in such a way that the raise in grade could be readily accomplished. In the west viaduct the problem was solved by building an entirely new approach on an independent location except where the two approaches come to a point of tangency on the center line of the bridge.

Had no further conditions been imposed, it is probable that the new river span would have been erected on the new grade and then shifted over by a sidewise transfer according to established practice. However, a further condition was introduced in the requirement of the War Department that a 150-ft. channel way, clear of falsework, must be maintained at all times. The difficulty with this provision lay in the fact that the construction of the new piers left only one waterway opening of 150-ft., namely that between the old Piers 3 and 4, which lie within the limits of the new 434-ft. span. Consequently, the placing of falsework to erect this large span would close this gap of 150 ft. It was suggested that this difficulty could be overcome by the partial use of the cantilever method of erection, but since the span would have to be erected to one side of the old structure, this would have involved cantilever erection without the security afforded by a masonry substructure. This suggestion was therefore discarded as involving too great an element of risk.

Upon further study it was concluded that the only feasible method applicable was to erect the shorter river span first, substitute this for the two old Spans 1 and 2 and after removing them, tear out the old Pier 2 and thus provide a temporary waterway of 150 ft. that could serve for navigation while falsework for the 434 ft. span closed up the other channel. This plan, however, introduced another complication. Owing to the fact that the new 261-ft. span would be used to carry traffic for a time with portions of the old bridge, it was necessary that this span be on the same grade as the old bridge. As other conditions pointed to the advisability of erecting the 434-ft. span on the new grade, it was necessary that the 261-ft. span be raised to the new grade at the time that the longer span was rolled into position.

The two truss spans are curved chord Warren trusses riveted throughout. There are no sub-panels and the panel lengths are greater than usual; namely, about 44 ft. The design provides for two tracks 14 ft. center to center with a side clearance of 8 ft. and a vertical clearance of 25 ft. In general one inch diameter rivets have been used with 1¼ in. rivets for field connections of main members. The shorter span weighs about 1,100 tons and the longer one 3,200 tons. As the combined length of the two new river spans is less than that of the four old ones, the east and west approaches were lengthened by deck girder span 93 ft. and 73 ft., respectively.

The smaller of the two river spans was erected on falsework down stream from the old bridge, the erecting equipment and material being delivered from the east approach by means of a short trestle spur from the eastbound track.

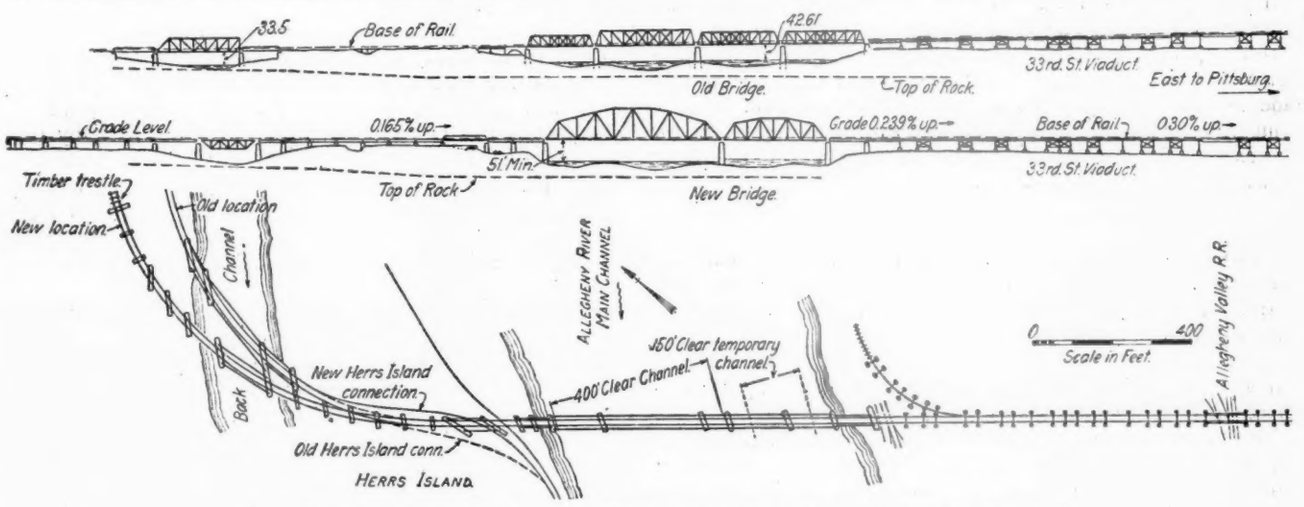


Looking Through the 261-ft. Span—The Temporary Girder Span in Foreground.

East End of Skew Girder Span F7 Before Being Rolled Into Place

The erection was facilitated to some extent owing to the fact that the limited load carrying capacity of the old bridge had resulted in restricting traffic to a single track, so by using the westbound track for traffic, the eastbound track on the

The erection of the new 434-ft. span and the new 73-ft. girder span to the west of it was prosecuted from the new west approach which had been erected previously. Owing to the fact that the new piers built for the 434-ft. span and

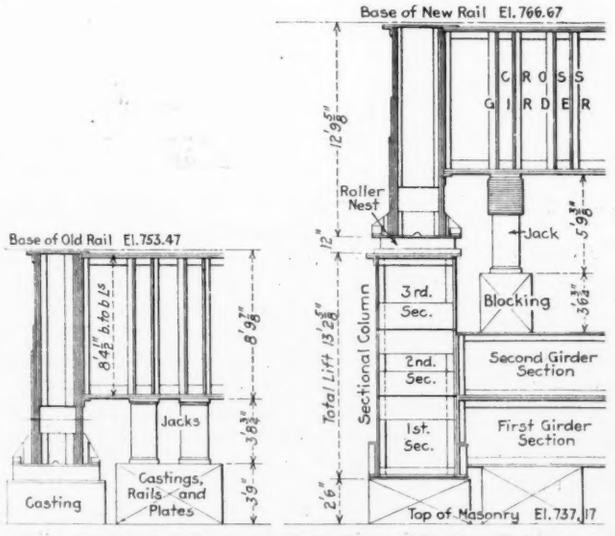


Location Map of the Bridge and Elevations of the Old and New Structures

east approach could be given over largely to the use of the erecting forces.

The Erection of the 261-Ft. Span

This span and the new 93-ft. approach girder span flanking it on the east were rolled into position on September 1,



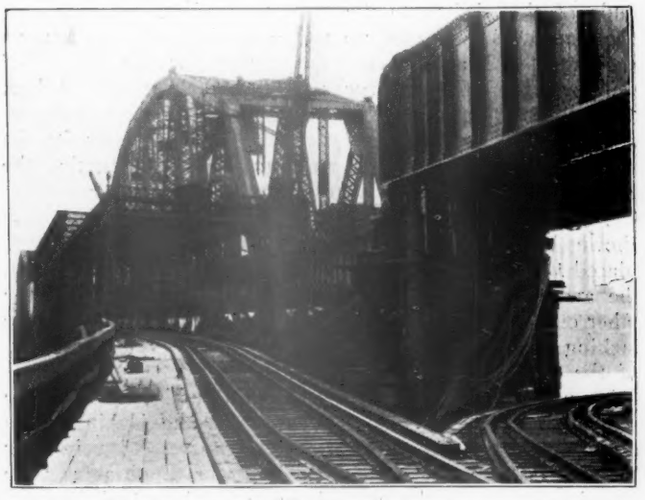
Initial and Final Positions of Jacking Rig for Raising the East End of the 261-ft. Span

the old Spans 1 and 2 being rolled out in the same operation. The entire change required an interruption to traffic of only three hours and three minutes. This change also involved the insertion of a temporary girder span in the westbound track to make up the gap between the west end of the new 261-ft. span and the east end of old Span No. 3.

The 434-Ft. Span

Immediately following this change the floor systems were taken out of the two old spans and the two old trusses pulled over against the north truss of the new span, to which they were lashed securely and dismantled. This operation released Pier 2 so that it could be removed to provide a new channel opening and thus permit the completion of the falsework for the 434-ft. span.

the girder span to the west of it had to clear the under side of the old truss spans still carrying traffic on the old grade, the new piers could not be built up to the full height necessary to receive the new spans on the high level. Consequently, it was necessary to provide the new steel spans with steel bents to support them on the piers until the concrete work could be built up around them after the spans were in final position. At Pier C, supporting the east end of the long span, this bent could be set in place as soon as the old spans had been removed. Consequently, the top of this bent was made to serve as the base for rolling in the span, but on Piers D and E this could not be done, so the bents were



The Old Bridge from the West Approach—New 434-ft. Span in Background—The Skew Through Girder Span F6 on the Right

erected on the falsework under the ends of the old span with the rollers placed underneath the bents. In other words, it was arranged to roll the bents in with the spans.

Similar complications arose in connection with the through girder span F-G which crosses the Herr's Island connection track. This span was also erected to one side of the final location but owing to interference with the operated track the steel bent used to roll in the east end of this span could

not be erected complete until traffic was suspended. Owing to the fact that this span is on a skew of a different angle than the river bridge, the ends of the intervening span E-F are not parallel. Consequently, it was not practicable to roll in that span and it was necessary to erect the girders after the adjacent spans had been shifted into final position. The west approach involved less complications since it was possible to raise the girders for the eastbound track to the new grade following the placing of the 261-ft. span. Consequently the eastbound track on the approach was ready for service on the new grade by the time that the final shifting operation was to be carried out.

The Final Transfer

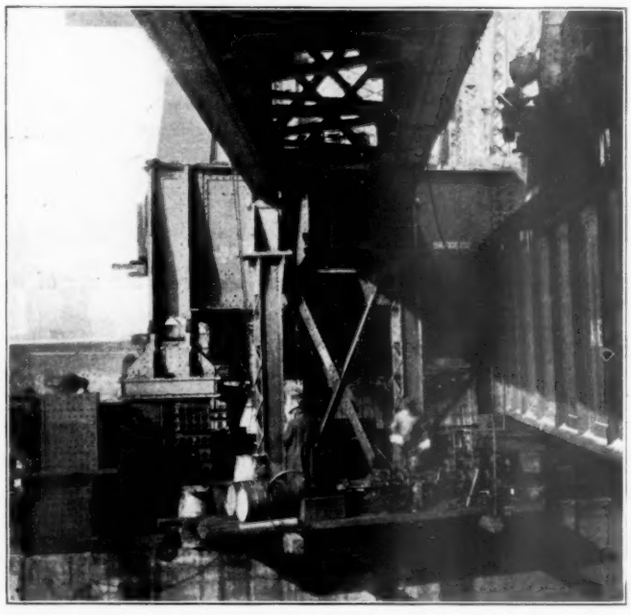
The final change to the new superstructure was made on December 20 according to a plan in which each step was carefully arranged in advance. Each member of the erecting organization was assigned to particular duties which were rehearsed beforehand insofar as this was practicable. As in previous operations of the same character, extensive use was made of telephones as a means of co-ordinating work.

Following the passage of the last train at seven o'clock, a. m., the track was cut and temporary girders removed in the Span C-3. They were lifted out by a derrick car and carried back out of the way. Similarly, the track was cut at Pier E to remove the I-beam spans carrying the operating track across that pier. This left the pier clear for rolling the new Spans C-D and D-E and the old Spans 3 and 4, the four spans being handled as a unit. The entire operation was completed by nine o'clock a. m. Power for this operation was supplied by two locomotive cranes standing on the long span and by a derrick car standing on the new west approach. As soon as the new spans were in final position, they were jacked up sufficiently to remove the rollers and rails and then lowered to permanent bearing on the masonry.

While this work was in progress, the track was cut over Pier F and the steel bent on that pier was extended to enable the Span F-G to be rolled over to final position and then lowered onto the masonry. After a slight adjustment of the ends of the girders to the span immediately to the west, the track was connected up and a derrick car came out on the Span F-G and erected the girders for the Span E-F picking them up from trucks on the track crossing below. With the completion of this operation the entire new superstructure was in place on the new center line ready for the operation of traffic over the eastbound track except that the 261-ft. span was still on the old grade.

The raising of the 261-ft. span was accomplished as shown in one of the drawings. Two 500-ton jacks were placed under the end floor beam at each corner of the span, the arrangement being to have one jack lifting while the other one was being fleeted preparatory for the next lift. The jacking was carried on simultaneously with the building up of the supporting columns under each shoe, these columns being made up in sections about four feet high, which were inserted in place as fast as progress in the jacking made room for them. To afford suitable transverse bracing for the sectional columns, sectional girders or diaphragms were introduced between the two columns at each end of the span as the raising progressed and further advantage was taken of these girders by using them as supports for the jacks so that it was not necessary to build up blocking for the jacks to the full height of the lift. Two of these girders were provided at the west end of the span and three at the east end, the total lift of the span being about 13 ft. at the west end and 15 ft. at the east end. While this process was being carried on, the span was being followed up by rail grillages placed on the top of the partially completed columns and arranged in such a way that only one-half of this grillage was removed until the next column section was slipped half way into place. As a further safeguard the heads of the jacks were followed up by filler plates surrounding the plungers. This stage of the work occupied the longest time, being started about nine a. m., and completed ready to take traffic at 1:40 a. m. Tuesday.

Before train service can be turned over the westbound track it will be necessary to raise the girders for the westbound track on the east approach trestle to the new grade. As explained previously provision for this raise of grade was made when this viaduct was built. This was done by framing the first 16 spans of longitudinal girders nearest the bridge between the cross girders of the steel bents, while the remaining girders of the trestle were all placed on top of the cross girders. The raise in grade was, therefore, accomplished by shifting the longitudinal girders from between



Jacking Operations on Pier B While Raising the 261-ft. Span

the cross girders to their top flanges, supplemented by the use of shims or blocks of varying thickness, while further raise of grade was provided for in the seven spans nearest to the bridge by designing the connections of the cross girders to the columns so that the cross girders could be moved up a variable distance on the columns. As this last change could not be made until the girders for both tracks were raised, the girders for the eastbound track, which were raised first, were supported temporarily on cross-braced pedestals standing on tops of the cross girders.

The tracks at the bridge are subjected to 28 scheduled train movements per day in addition to a variable number of extra freight trains and frequent switching and light locomotive movements. During the time that traffic over the bridge was suspended, arrangements were made to have all local passenger trains running west of Pittsburgh operate in and out of the Allegheny passenger station, while all through passenger trains were operated over the Pittsburgh & Lake Erie between New Castle Junction and McKeesport.

The steel in the new superstructure aggregated approximately 6,000 tons and was fabricated and erected by the American Bridge Company. The work has been carried out under the supervision of H. A. Lane, chief engineer, Baltimore & Ohio, Baltimore, Md.; W. S. Bouton, engineer of bridges, and P. G. Lang, Jr., assistant engineer of bridges. A. C. Clarke, district engineer, is in direct supervision of the work in the field. J. E. Greiner & Co., Baltimore, Md., are the consulting engineers.

Annual Dinner of the New York Railroad Club

James A. Emery, Counsel of National Industrial Council, Principal Speaker of Evening

THE ATTENDANCE of 1,750 members and guests at the annual dinner of the New York Railroad Club at the Hotel Commodore Thursday evening, December 16, might well be taken as an indication that the annual dinners of this organization have become one of the real functions of the railway and railway supply field. This was the second annual dinner of the club; last year's dinner—in January—was properly termed a "rousing" success; but the attendance at this year's dinner exceeded that of last year's by something like 350.

The principal address of the evening was made by James A. Emery, counsel of the National Industrial Council, who spoke on "Transportation Combinations and the Public Interest."

The introductory address was made by John A. Droege, general superintendent of the New York division of the New York, New Haven & Hartford, who has recently been elected president of the club. The toastmaster of the evening was William G. Besler, president of the Central of New Jersey. One of the features of the evening was the presentation of a loving cup to H. C. Manchester, superintendent of motive power of the Delaware, Lackawanna & Western, the retiring president; the presentation was made by H. H. Vreeland of the Interborough Rapid Transit Company, who is one of the leading members of the club and one of long standing.

"Bobby" Besler, daughter of President Besler, was in charge of a very successful musical entertainment for the occasion. She led mass singing of a number of popular songs reworded in some cases to make railroad songs.

Mr. Emery's address on "Transportation Combinations and the Public Interest" discussed principally the right of railway employees to strike. "It cannot be the legitimate object of any (labor) combination," he said, "to deprive the public of a service vital to its existence, to stop its water supply, to deprive it of fuel, light or heat, to obstruct the mails or production intended for national defence, above all, to starve a community or the nation by deliberately and concertedly depriving it of that transportation without which it cannot live. If these are purposes which we cannot permit combinations to undertake, for the same reason they cannot be the means through which any other purpose, however good in itself, may be accomplished." He discussed the matter of National Labor Boards of Adjustment and offered three tests as to labor agreements to determine whether the purpose of Congress, as stated in the Transportation Act, is being executed and the interest of the public protected.

An abstract of his remarks follows:

Transportation Combinations and the Public Interest

The vast service of the American railroad system is today performed through private corporations, subject to public regulation. In it is invested a vast capital that must be continually renewed and enlarged if it is to adequately perform its task. Its operation demands highly trained executives and a numerous, ever-increasing operating and mechanical force. No field of enterprise or service has presented more inspiring examples of the exceptional opportunities and rewards of American life. During the past quarter-century, which has witnessed the widespread organization of labor, the operating and ultimately the mechanical and industrial departments of the American railroads have been largely organized into unions of their craft. In the industrial, as distinguished from the operating divisions, widespread organization was brought about during the period of government control and operation. Were these organizations committed to purposes and methods as compatible with the public interest, and did they enjoy a leadership and administration as conservative as that which formerly characterized the great railroad brotherhoods, there would be small cause for public anxiety. But they boldly assert the unrestrictable right and, if necessary, the intention to concertedly withdraw from the service in which they are engaged as a means of compelling the acceptance of such demands as they may make in the defense or furtherance of their common interest.

Reduced to its plainest terms, it is the assertion of the right to deprive the people of the United States, in whole or part, of railroad transportation, through the combination of those who have voluntarily engaged in that service. We have witnessed such movements in operation in the United States upon a national scale in the famous Debs' strike and, in a lesser degree, on several other occasions, the most notable recent example of which was the so-called outlaw switchmen's strike.

Within a year, the same spectacle has been presented in England, France and Italy. The suspension of traffic there, as here, caused heavy loss and great suffering, but in no instance was the strike successful nor did it fail to excite popular reaction that was as vigorous as resentful. The issues involved in the rights asserted and in the consequence of their exercise are far larger than any issue between employer and employee. Although they may arise out of that relationship, they transcend even the field of transportation, though the principle at issue finds no better exemplar than that area. The question is, does our modern industrial society possess adequate powers of self-defense or not? Are the people of the United States powerless to restrain a combination of those voluntarily engaged in the public service within the limits of social safety, or must they submit to the unrestricted exercise of its collective power even though it imperil their social structure?

The Responsibility of the Individual

To ask that question is to suggest its answer, for there is a principle written in the hearts of men older than any script of black-letter law that the safety of the people is the supreme law. It might, therefore, be enough to answer the question in terms of the limitation which the common good may impose upon association and combined action, but it reinforces that consideration and clarifies the answer to the plausible and ambiguous declaration that "no man may be required to remain at work against his will" if we first consider social responsibility in terms of the individual. Is it true that even the individual is free to arbitrarily refuse or withdraw his service whenever he pleases, under any circumstances and in any civil employment? Common sense, common morality and common law will equally answer "no." Quite apart from any mere breach of contract, there are many circumstances in which it is not merely morally wrong for the individual to quit but he is or may be placed under legal penalty if he does.

The Restraint on the Combination

If the dearest rights of the individual must yield to such restraint as is essential to protect the common good, how can

a combination of individuals avoid such restraint as is necessary to assure social security? For whatever the power of social harm which resides in the individual, that of the combination is infinitely greater. For the combination is not a mere aggregate of individuals. It is not a crowd or a mob. It is the organized numbers in which the will and judgment of each is subordinated to the common purpose of all. Great and beneficial as are the uses, as the tool of social progress, and the instrumentality of collective defense and advancement, abused, it may become the most destructive weapon in the social arsenal. Conscious of the vast power which combinations may create for good or evil, government, as the representative of the people, scrutinizes with critical eye the conditions and circumstances under which many obliterate their individuality, subordinating it to the accomplishment, by common methods, of the associated purpose. It is therefore those methods and this purpose which becomes the test, morally and legally, of its evil or good, its harm or help, its legality or illegality. If, therefore, the public necessity may require the individual to meet the social responsibilities of his job, for an obviously greater reason, it must be true that no form of combination which does not itself add, but, rather, subtracts from the freedom of the individual, can minimize that controlling social obligation. Furthermore, if the individual may not do that which is socially injurious, for a far greater reason the combination may not be permitted to do so. Pursuing this consideration, it cannot be the legitimate object of any combination to deprive the public of a service vital to its existence, to stop its water supply, to deprive it of fuel, light or heat, to obstruct the mails or production intended for public defense, above all, to starve a community or the nation by deliberately and concertedly depriving it of that transportation without which it cannot live. If these are purposes which we cannot permit combination to undertake, for the same reason they cannot be the means through which any purpose, however good in itself, may be accomplished.

"The Ballot Would Have Lost Its Meaning"

Nay, once accept the principle that any group is permitted to exert its collective economic power without restraint as to purpose and you have made the strike an accepted weapon of political revolution. Through such means the British miners would have secured a parliamentary nationalization of the coal mine, the Italian factory operatives a socialistic control of industry. Within recent memory that principle propelled the Adamson Act through an unwilling Congress. Asserted by organization in an indispensable utility and reinforced by sympathetic action in other fields of activity it could enforce its political program through threat of social demoralization. The ballot would have lost its meaning.

Labor and the Transportation Act

With all these conditions to which I have alluded fresh in its mind, Congress undertook, in the spring of this year, the formulation of a Transportation Act. An important and inevitable part of its problem was to protect the paramount public interest in uninterrupted and efficient transportation by such regulation of the relations between the carriers and their employees that, while recognizing the right of each, continuous train movement was assured against arbitrary interruption.

The Senate and House, after lengthy hearings, undertook to meet the problem by different methods. Before the interstate commerce committee of each body, the right of employees of carriers to engage in direct or sympathetic strikes in defense or promotion of their interests has been emphatically asserted and it had been more than intimated by authorized representatives that valid legislation restricting this right not only might not be obeyed but disobedience to it might not be counselled.

The Senate met this challenge of public authority by providing for the compulsory arbitration of disputes between interstate carriers and their employees, which threatened the interruption of commerce. The House committee proposed a method of voluntary adjustment and arbitration, but the House itself amended the committee's bill by the adoption of the so-called "Anderson amendment" providing for three original and appellate boards of adjustment and arbitration. The membership of these was to be composed of representatives of the carriers selected from their management, and of the employees from the officers or members of 16 unions named in the bill. There was, however, no final requirement for the acceptance of the ultimate conclusions of these tribunals. In the nature of things, the proposal made it impossible for the unorganized employee to obtain representation in the presentation or adjustment of his petition or complaint except through an organization of which he was not a member. Its practical effect was to unionize railroad employees by statute.

These conflicting proposals were reconciled in conference between the House and Senate by mutual concession, resulting in the formulation of provisions for a permanent tribunal of ultimate adjustment and arbitration in which, for the first time, the public is formally represented. This body, known as the Railroad Labor Board, is composed of nine members appointed by the President of the United States and confirmed by the Senate. Three are to be named from nominations made by the employees of the carriers, three from the nominations of management, the three public representatives being directly appointed by the President.

Upon management and men alike, the act places the legal responsibility of utilizing every means of avoiding an interruption of service. It recognizes conference between the parties as the original mode of settling differences. It validates agreements which they may voluntarily make between themselves, and approve such means of adjustment as they may jointly establish. But throughout, it equally recognizes and asserts the rights of unorganized employees.

The Railroad Labor Board

The Railroad Board may itself compel investigation, but not arbitration. To it is reserved the right of ultimately reviewing any finding of original instrumentalities of adjustment which the carriers and their employees may set up. It may assume jurisdiction of any dispute at any stage in a controversy, if there be undue delay or other good cause, and it is empowered to suspend the operation of any wage decision until it has examined the effect upon the rate structures. It is required that at least one representative of the public shall be part of the majority which approves such decision.

The tribunal and its procedure is novel in that for the first time the direct representation of the public is assured not only in any controversy which may threaten the interruption of transportation, but in any wage dispute tending to enlarge the burden of transportation.

These provisions grew out of elaborate Congressional discussion, in which it was conceded that Congress possessed the power to compel arbitration of disputes threatening the interruption of rail transportation between the states, but the direct prohibition of strikes and lockouts, originally incorporated, was abandoned and moral compulsion substituted. There is no direct penalty for refusal to arbitrate, but it would be a bold carrier or union that would exhibit such contempt for the means of adjustment and adjudication by law, or so poor an estimate of the justice of its own cause that it would decline to submit its case to an impartial tribunal upon which national attention was fixed, and rather prefer to enforce its demands by the paralysis of an indispensable service.

The first dispute offered to the consideration of the Rail

road Board involved pending wage adjustments which had been at issue for months before its creation. These, you will recall, despite some angry demands for haste, were adjudicated after a full hearing and the decision of the Board accepted. There was recently submitted to it a controversy the implications of which are of the deepest public consequence. The Standard Associated Railroad organizations, some 16 great national unions, demanded, through their executives, the establishment of National Boards of Adjustment, which was in effect the continuation of existing boards of adjustment provided under National Agreements with the same organizations negotiated during the war and immediately thereafter by the United States Railroad Administration.

National Boards of Adjustment

The Railroad Executives did not concur in this and referred the matter to the Railroad Labor Board, with the suggestion that it be made the subject of a public hearing. To this the representatives of the unions, in turn, disagreed, suggesting that it be a matter of conference between the Board and the representatives of both managment and the men.

Under date of December 7, the Board itself has decided "that Congress did not intend the United States Railroad Labor Board should exercise jurisdiction over the question of the creation of adjustment boards." The Board, however, offers its friendly offices and its advice in conference with representatives of the carriers and employees involved.

I feel this is neither the time nor the place to discuss the serious issues involved in this controversy, but I venture to emphasize the fact that the creation of National Boards of Adjustment presupposes the continuation of the national agreements established as a wartime necessity, but, in their terms and conditions, admittedly unfitted for the circumstances of peace, and by their nature and operation, imposing, through the carriers, an extraordinary economic burden upon the public.

These are great and serious issues. They affect not merely the carriers and their employees. They relate directly to the continuity, efficiency and cost of railroad operation. By their circumstance, they inevitably react upon our industrial, political and social life. It is therefore vital that the public should be represented in any consideration of these great policies that are to ultimately determine their adoption, modification or rejection. In the light of this supreme public interest, there are certain tests that it seems to me may determine whether the purpose of Congress, as stated in the Transportation Act, is being executed and the supreme interest of the public protected.

Four Tests Suggested

I submit:

1. No mode of adjustment nor agreement should receive approval that does not assure a review participated in by a representative of the public of every serious controversy or negotiation. Any proposal to establish relations between carriers and their employees the purpose or effect of which is to eliminate review or supervision by the representatives of the public should be rejected.

2. No form of adjustment or agreement is in conformity with the purpose of Congress nor should be approved by the Board that does not equally recognize and protect the rights to employment, adjustment and representation of unorganized employees of the roads.

3. No form of adjustment or agreement should be approved that does not safeguard the efficient and continuous operation of train service. To this end each road should be considered as the unit of operation and self interest, management and men stimulated to the cultivation of personal relations by continuous contact between executives and employees, that each man may find in the road which he serves the prompt means of protecting his interest and the opportunity of advancement through merit.

4. Since the public interest requires the assurance of uninterrupted service, the Board should ask the carriers and their employees, in whatever form agreement between the respective roads and their employees take, to accept without strike or lockout the ultimate decision of the Board upon any question within its jurisdiction.

The British Coal Strike

By Robert E. Thayer
European Editor of the *Railway Age*

LONDON, November 6.

THE BRITISH COAL STRIKE which lasted from October 16 to November 4 has been settled with a compromise, the men getting their 2 shillings (40 cents) a shift advance up until January 3, 1921, and after that an adjusted increase based on output up until the end of March, when a permanent scheme of wages will have been determined between the mine owners and the miners' union.

This strike may well be classified as the best organized affair, with respect to both sides of the controversy—the miners and the public—of any similar undertaking. The miners followed their leaders and the well established precepts of their union to a man. The public, including the industries, railways, etc., having had due warning—the strike was anticipated since July 7, when the miners first presented their claims—were as well supplied with fuel as their storage capacity would allow. It is, of course, by no means inferred that the strike did not inflict great economic damage to the entire nation—the Minister of Transport estimates the loss in revenue to the railways on account of the strike at from £2,000,000 ($8,000,000) to £3,000,000 ($12,000,000) per week—but as to the actual suffering from the lack of coal there was no difficulty experienced.

Certain industries which depended upon large daily supplies of fuel from the mines were forced to suspend business soon after the beginning of the strike owing to a lack of storage space. The railways, although, taken as a whole, well supplied with coal, cancelled many through trains as a matter of precaution. The householders, for similar reasons, were rationed to 112 lb. per week provided that they had less than half a ton in stock. Transatlantic sailings were cancelled in fairly large numbers. All export of coal was absolutely prohibited. With all these precautions, however, there was nothing apparent to the man on the street that a strike of such damaging possibilities was in progress.

No reproach can be placed on the government—the mines being still under state control, the government carried on all the negotiations—on the one hand and the union leaders on the other for the manner in which the strike was handled. The government held itself ready at all times to treat with the miners' leaders. The miners, on their side, were always ready to treat with the government. The strike came about by the rank and file of the miners rejecting, by ballot, the terms accepted by their executive committee in its negotiations with the government. With the disposition of the men thus ascertained by the union leaders, every means was taken to make the strike thorough and effective. It was the work of a wonderfully well organized body of men which, by the way, is characteristic of English labor unionism.

During the first week of the strike there was no apparent move on the part of either side to effect a settlement. The government used no forceful tactics to drive the miners to a settlement. For it a waiting policy was the only one followed. With the miners, however, it was quite different. Labor in all its branches is very closely allied throughout

England. The strike had progressed only a few days when the transport workers, made up of bus men, teamsters, tramway workers, etc., threatened a sympathetic strike. They were followed later by the National Union of Railwaymen. So at the end of the first week the general situation appeared serious. The threatened sympathetic strikes were the work of the extremists, of which England has quite a number but who by no means have control. The more moderate of the union leaders were able to keep the men in check and prevented any precipitate action by the plea that there still was a hope of settlement.

The effects of the threats were not lost, however, and undoubtedly hurried the reopening of negotiations by the government with the miners. On Sunday, Mr. Lloyd George, the prime minister of a coalition government and perhaps the greatest "compromiser" England has ever seen, called the miners' executive into consultation and as a result of a series of secret conferences an agreement was reached between the three parties—the government, the owners and the miners' executive. This agreement put before the men in a ballot form was rejected by a bare majority of 8,459 votes or 0.62 per cent of the votes cast *but* under the rules of the miners' union—"If a ballot vote be taken during the time a strike is in progress, a vote of two-thirds of those taking part in the ballot shall be necessary to continue the strike"—the strike was declared "off" and the men returned to work on November 5.

The Terms

The original demands of the miners were published in a short article, giving an idea of the situation in September, in the *Railway Age* of October 1, on page 566. They were briefly:

1—That the price of household coal should be reduced by 14 shillings 2 pence (about $2.84) per ton.

2—That an increase of two shillings (40 cents) a shift, and corresponding increases for youths and boys be given immediately.

With undisputed evidence being given by the Government that the profits of the coal industry would not support such demands—the reduction in price involved £36,000,000 and the increase in wages £27,000,000 against which there was only a profit of £32,000,000—the miners' executive committee agreed to waive the demand for the reduction in the price of household coal but still insisted upon the increase in wages. It was not difficult for the miners to make this concession for they found, not as they had hoped, that they did not gain the least bit of sympathy from the public for their cause. They were very much surprised to find the public so little interested in their price reduction demand and not a little disappointed to find that it had not one iota of influence in winning the public over to their side.

With demand No. 1 eliminated the miners set about winning the two-shilling increase. To this the government objected without a definite guarantee on the part of the miners for increased output. The negotiations had, up to this time, been conducted by the Board of Trade but with this "empasse" the negotiations were carried to a higher court—the prime minister. He brought the mine operators into the discussion and succeeded in having the date of the strike, which was called for September 25, postponed. An agreement was reached between the then three parties on October 1, to the effect that:

An increase of one shilling, six pence and 4½ pence will be paid to the men, youths and boys, respectively, for an average output of 240,000,000 tons per year.

An increase of 1½ shillings, nine pence and 6¾ pence, respectively for an average output of 244,000,000 tons per year.

An increase of two shillings, one shilling and nine pence, respectively, for an average output of 248,000,000 tons per year.

This was put before the rank and file of the miners by ballot and rejected by a vote of 181,428 *for* and 635,098 *against*. As a result of this ballot the strike went into operation on October 16.

The terms of settlement were concluded, as mentioned above, during the second week of the strike. It gave the men their two shillings advance per shift for eight weeks with an adjustable increase based on output after that time and until March 31, 1921, when an entirely new and permanent wage scale will be developed by the miners and the owners. The provisions of this final settlement are unique. While the wages for the first three months of 1921 are, in effect, based on output, the agreement states that the increases for these three months shall be governed by the amount of the proceeds from export coal over a previous test period and further that all coal mined above the rate of 219,000,000 tons per year shall be considered export coal, whether it is exported or not, and that the price per ton of the export coal is to be considered at the price which prevailed during the September quarter—a very favorable quarter for the miners—regardless of what price it actually sold for.

Another interesting item in the agreement is that the mine owners, who now receive standard profits plus 10 per cent of any surplus profits, agreed that their 10 per cent of the surplus profits should be reduced upon the same principle as the miners wages if the proceeds necessary to justify the wage were not realized. In this way both the miners and the mine owners have a direct interest in improving the output—a condition the government has throughout the controversy sought to obtain.

Report on Globeville Collision

THE INTERSTATE COMMERCE COMMISSION has issued a report, dated November 17, and signed by W. P. Borland, chief of the Bureau of Safety, on the butting collision of electric cars on the Denver & Interurban, near Globeville, Colo., on September 6 last, in which 11 passengers were killed. The cars met, on a single track, when both were running at about 30 miles an hour, or faster, and two employees were killed and 209 passengers and five employees were injured. The northbound train, extra 158, had no right over the southbound, which was regular 308; but it started from Globeville at 11:30 a. m., which was the minute that 308 was due there.

Globeville is the north end of double track, and there is a train register there; but the conductor and the motorman of the extra had both neglected to check it. Conductor Schulze said afterward that he was "under the impression" that No. 308 was due there at 12:30 instead of 11:30. He had no time table and depended upon one carried by Motorman Cripps. He had asked for a time table, but was told that the supply had run out. He had received two train orders at Globeville and had given copies to the flagman; but the collision occurred within a minute or two and before the flagman had read them; and therefore he did not know that these orders gave his train no right over the southbound regular train. It was the duty of the conductor to check the register and fill out Form 1514 (showing that he had done so) and hand it to the motorman; but this he did not do. It appears that the operator at this station, contrary to the rule, had habitually made entries on the register for trainmen.

Conductor Schulze had never run a train over this line before, but had served two days in July as assistant conductor. The motorman had been ill with ptomaine poisoning and had lain off on the day before; he had tried to lay off on the day of the collision, but was told that is was impossible since there was no person to take his place. Conductor Schulze had had seventeen years' experience on the Colorado & Southern as a conductor.

Rehabilitating Our Railroad Organizations

A Discussion of the Means Available for Aiding the Re-establishment of Employee Morale

By C. F. Balch

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BUILDING IS A SLOW PROCESS; tearing down is more easily done. Rebuilding is an even slower process because it not only requires new and constructive effort, but the tearing down of the structure to be replaced, and the clearing up of the debris resulting. Rebuilding our railroad organizations involves the task of moulding the mentality of many men of many minds and directing their thoughts into the right channels.

Our railroads, structurally, are the greatest achievement of the age, and yet, with all their excellent qualities, they will not run themselves. The more powerful a locomotive becomes, the more brains it takes to operate it successfully, not only on the part of the man who drives it, but on the part of the man who despatches it, assigns its load, determines its field of operations, and how much or how little it does each day; i. e., the marvelous machine is capable of marvelous performance, with its possibilities all dependent upon the brains that direct it.

Our railroad organizations are even more of a structural achievement than the railroads. To operate one of our trunk lines requires the united mental effort of some 50,000 individuals acting in harmony, in addition to the physical effort involved in the maintenance of the property and the manufacturing of the power which drives the 2,000 or more locomotives.

This mental effort is the basis of all action, and improperly applied, is the basis of all accidents. Think of the economic loss incurred when, after a farmer has expended his efforts to produce 1,000 bushels of grain, hauled it to the station, and the railroad has hauled it to the central market, it is found that the car into which the grain was loaded has a leaky roof, and the grain had been damaged because the railroad agent had failed to discover the condition of the roof. It might have required but ten minutes to have prevented the loss, but the result was disastrous, not only practically nullifying the farmer's effort for a year, but ruining the food of the people who are dependent upon it for sustenance.

Rebuilding Morale

Our organizations have lost much during the last three years of that which is called "Morale"; possibly not more than in other lines of industry, but the loss in the field of transportation is more noticeable because its effect is further reaching, and thus is felt by a larger number of individuals. Those who live in cities have had it very vividly impressed upon their minds that they are dependent upon the railways for the necessities of life every day and that a cessation of transportation facilities for even a day is a public calamity.

The rebuilding of this organization, then, will require the eliminating from the minds of railroad employees of the elements of carelessness, indifference, and disloyalty and the substitution therefor of a spirit of conscientiousness, ambition and loyalty which can only bring success. What is needed is not an antidote, but a process of resuscitation, a truly constructive effort that will include some new stimulants that may properly be substituted for the practices of bygone days. This opens the way for many suggestions. How may we appeal to the employee in order to effect the change desired? Inasmuch as the effect desired is mental, the appeal must be to the intelligence as well as to the conscience of the employee.

Twentieth Century Supervision

In a recent issue of the *Railway Age* the statement was made that there was a demand for a new and advanced type of supervision—that something must be done to answer the need of the times for a closer co-operation of the forces making up railroad organizations. That article presented a real need.

There appears to be in industry, a great unrest, seemingly born of the changes of the times, and tending to get away from the form of supervision which, in the past, has been successful. This old type of supervision has followed the thought of military discipline. If an employee made a mistake, discharge him. This line of conduct is the practice among autocratic governments, both in national and industrial life. Its basis is the fact that human beings are actuated by "fear," and the supposition that an employee, trembling for the safety of his employment, will be urged to his highest effort.

The government of the United States is founded upon the principles of representation, co-operation and democracy, the fundamental basis of which is not fear, but faith—faith in each other, in our governing officers, in our institutions, in our future, and in our plan of civilization, which, if not the final form, is at least a step in advance of autocracy. It is, therefore, natural that within this civilization should develop the highest and best of human activity, and that each individual should achieve the most efficient life. This suggests that since all organized society must depend upon co-operative action for its results, and since co-operative action can develop only through intelligent supervision, there is a demand for a new type of supervision which will meet the need of the hour by producing an incentive for each employee to utilize his every effort in every instance in the best possible way.

If this is really the trend in which progress may be expected, it may be well to give serious consideration to the available resources which may be applied toward the development of such a theory, the success of which will require: (a) the cultivation of a new type of intelligence and conscience on the part of the worker, and (b) a new type of supervision which will tend to enlighten and educate the employee.

The best part of a man is his thinking apparatus, and it is the activity of his mind which is producing the unrest. The proper remedy is not an antidote, but the direction of his thoughts into proper channels. Every man has a desire to excel, and, further, every man derives a certain amount of enjoyment from the performance of those duties in which he excels, aside from the remuneration he may receive. All men are somewhat ambitious, and to realize upon that factor of human nature, it is only necessary that the effort to satisfy that ambition shall be directed intelligently at all times and places.

The question then arises as to what methods or instru-

mentalities may be employed for this purpose, and among these readily understandable, are the following:

Use of Statistical Information

Statistical statements, comparisons, and analyses, have been the foundation of all successful achievements in railroad operation to date. They have pointed the way for that investigation and supervision which has enabled operating officers to direct their efforts into proper channels and achieve results. Statistical information has heretofore, generally stated results in groups, by divisions, districts, or lines, following the lines of supervisory effort, and with few exceptions, has gone no further than to group facts so as to be useful to "Supervising Officers," and to indicate to the principal executives, the responsibilities of "Division Officers."

Experience has fully demonstrated that where statistics are so grouped as to state the results obtained by divisions, thus setting out the facts for which every division officer is responsible, they have stimulated the effort of the division officers and have proved to be an effective incentive toward better operation. Similarly, whenever (as in the case of fuel statistics) the facts set up indicate the responsibility of the individual, the result has been correspondingly satisfactory.

Use of Employees Magazines

In order that the full value of statistics may be realized, it is necessary that they be disseminated so that each employee may have that information which will enable him to comprehend the part his action plays in the final results. A popular employees' magazine may be made of great value in this manner, by extending the influence of statistical information, not only to the supervising officers, but to those employees who are actually performing the service, and who should have the same regard for economy and the same ambition for success as the management. Supplementing this, there should be a type of supervision which will bring personally before those individuals who are especially in need of correction, instruction, or assistance, such changes in methods or practices as are necessary to improve their service.

The one object to be held in view in this connection is not only to produce more complete information, but to use it, and see that the influences which may be set in motion by correct information are fully developed and that the desired result is obtained. Many competent operating officers are lacking in their appreciation of statistics, and the constant recurrence of monthly statements, varying little in contents, grows monotonous to them until some distinct feature or set back arouses them to renewed interest and activity.

Establishment of "Executive Staffs"

Supervision of the character implied may be made effective by what is known in manufacturing organizations as an "Executive Staff," a bureau or department whose function is to investigate and plan new processes or improvements, and later to record and analyze the results obtained. Such an "Executive Staff" should be so constituted as to be adequate:

(a) To procure such information as may be necessary to bring before the employee the facts, general or specific, or both, as will enable him to understand his particular part in the general scheme of his employer, and the manner in which he may contribute to its greater efficiency and success;

(b) To disseminate such information through individual, divisional or general statements and documents, published in the form of an employees' magazine, issued as statistical statements, general letters, group meetings, with lectures, or any practical manner that may be found desirable.

(c) To get into closer touch with the employee, through such supervision as traveling representatives of "Fuel Conservation Committee," "Loss and Damage Committee," "Safety First Committee," "Operation of Cars Committee," or other lines of activity which may be deemed expedient;

(d) To conduct all activities on a constructive basis, following the theory that the fundamental cause of error on the part of the employee is not from his lack of willingness so much as from his lack of information.

Disseminating Railroad Information

Behind this line of reasoning lies the suggestion that one of the greatest expandable assets of any of our great trunk lines is the minds of its employees. If a manager could have 50,000 men as well informed as himself, the operation of his line would be simple and, therefore, any manager may consider that whatever information he is able to impart to those assisting him will lighten his task by increasing their usefulness; and whatever he withholds, detracts from the reaction which his efforts produce.

Every manager knows that his own usefulness is based largely upon the information at his command, and that just as he is helped by the point of view which he obtains from statistics and reports, so will everyone below him be similarly helped by corresponding influence. The effort of every manager should be to pass to his assistants or subordinates, as much useful information as possible, in order that he may receive from them that assistance which each is able to perform.

Another idea which may properly accompany this is to give due publicity to the good results, progress, or achievements of different individuals, with a view to stimulating a spirit of emulation among all employees. There is much talk of self-determination, self-government, and such, and this craving for recognition on the part of all ambitious Americans may well be properly developed and become a real asset to an organization. All along this line of thought is the corollary that no railroad, however fine, will run itself, and the great achievement in American railroading has been the development of many organizations whose intelligence and integrity were their outstanding features.

Appealing to the Conscience

The appeal to the intelligence alone is not always sufficient, for many men know full well how to conduct themselves properly, but do not do so. No thief will claim that stealing is right, or that he has a special privilege to violate the principles of society by so doing.

The appeal to the conscience may be made along the line of public service. All railroad employees should get a new perspective as to their employment being a "public service," a service to society which they render, and a spirit akin to patriotism should pervade the entire railroad organization. Patriotism has in the past been one of America's outstanding qualities, and this should be purely of an American type for the reason that, surrounded by American influences and amid our great institutions, a loyalty to them and a faith in them is a natural development. Hence, the effort should be toward a more complete understanding of all these relationships.

Co-operative Supervision

As stated before, supervision in the past has had its basis largely upon driving methods which, in the main, mean punishment for all offenses. The predominating factor played upon has been the employees' sense of "Fear," following the idea that the "Fear of God" (or the employees' immediate superior) is the great actuating principle of human conduct. This is old testament philosophy, and contrasted with it is the real philosophy of "Faith" as exemplified in the life of the World's Redeemer and his followers. Faith, as he taught it, would inspire a man to his highest and best activity, actuated by a desire to please, "not with

eye service as man pleases but ******with good will doing service****** knowing that whatsoever *good thing* any man doeth, the same shall he receive of the Lord." This admonition, followed properly, would produce an irreproachable line of conduct on the part of all, both employee and supervisor.

The thorough unionizing of the railway employee has impeded the old channels of action, and through its influence reacted against the threatening processes without substituting any new incentive, and while this proposed remedy is some 1,900 years old in its enunciation, it is still largely untried as to its vital application. Is it too much to suggest that the time is here to attempt to realize on this teaching as a business proposition and demonstrate a little of applied Christianity in railroad organization?

It may be urged that all men will not respond to this treatment, but that did not deter its author, and those who do not respond should be considered as lacking in fitness for the railroad branch of the "public service," which should eventually rise to the condition which would entitle it to a commendable place in a Christian civilization.

Senate Committee Criticises Priority Orders

SENATOR CALDER, of New York, as chairman of a select committee of the Senate which has been conducting an investigation into the general building situation, including such measures as may be deemed necessary to stimulate the development of construction work, has submitted a preliminary report which, in connection with the transportation phase of the subject, criticises the priority orders issued by the Interstate Commerce Commission giving preference in car supply to coal shipments. The references to transportation in the report of the Senate's select committee on the building situation include the following:

"The building industry was disrupted during the war by federal intervention, and has been unable to get back on its feet since the armistice because of transportation, fuel, and labor difficulties, because of the diversion of credit to commercial purposes, and because of handicaps of taxation. The industry would naturally have revived, because of the great need of construction, if it had enjoyed pre-war transportation conditions (both as to promptness of delivery and low cost), pre-war fuel conditions, pre-war labor efficiency, and if investment capital had not been diverted to other channels, especially through tax-exempt securities, and had not been driven from the building industry by high income and excess-profits taxes. It now seems beyond the power of private individuals, municipalities, or states to overcome the present handicaps of transportation, fuel, finance, and taxation.

"The freight rates on building materials were increased some 50 per cent in June, 1918, and some 40 per cent in August, 1920, making a total cost of freight on building materials of nearly $2.10, as compared with $1 before the war; the total for other industries being about $1.75, compared with $1 before the war. Shortly after the appointment of this committee the transportation facilities of the country were allocated to coal movement through priority orders of the Interstate Commerce Commission, and the subsequent irregularities of delivery of building materials have been instrumental in bringing about the recent stagnation in the building industry. The committee believes that the issuance of ex parte orders by the Interstate Commerce Commission has occurred without a full appraisal of their consequences by the commission and that such orders have made opportunities for profiteering and have been injurious to general industry. It is the function of the Interstate Commerce Commission to regulate railroads and not to regulate industries. The committee would direct the attention of the Senate Committee on Interstate Commerce to this matter, with a view to amendment of the transportation act in order to check the issuance of ex parte orders. Intelligent supervision of transportation matters should insure the co-ordination and full use of railways, waterways, coastwise shipping, and terminals, so vitally necessary at the present time.

"Coal profiteering, especially as it has followed the priority orders issued by the Interstate Commerce Commission, has continued unchecked by the Department of Justice, and is a national disgrace.

"The imperative necessity of continuity of supply of fuel demands the fulfillment of contractual relations in this industry more than in any other, and yet one of the primary causes for the disgraceful and disastrous conditions during the past six months has been the repudiation of contracts. An exceptional demand not only brings about reckless and unwarranted repudiation of contracts made for delivery of coal but the substitution of inferior quality at higher prices. Indeed, coal contracts are so drawn as to be breakable in delivery, in quality, and in price.

"Our investigation into the coal situation has convinced us that the private interests now in control of the production and distribution of coal, in spite of efforts by some, are actually unable to prevent a continuance or a repetition of the present deplorable situation, and that it is the duty of the government to take such reasonable and practical steps as it may to remedy the evil.

"An inherent responsibility of the government is the protection of its people. To assure the mining, transportation, and distribution of coal at fair prices is a public duty from which the government can not escape. But your committee believes that governmental administration of the production and distribution of coal should be a last resort, as governmental activities should always be directed toward encouragement of private initiative and enterprise."

Senator Edge, a member of the committee, also undertook to criticize the Interstate Commerce Commission, saying in part:

"In a general way, it looks to me as though revision or amendment of the Interstate Commerce Commission law might be necessary. At present, that body seems to have almost autocratic powers and to be virtually free from accountability to the executive or legislative branches. It apparently acts on its own initiative through ex parte orders on lines which were not contemplated in the theory on which it originally was constructed. Its present judicial powers might well be transferred to the courts, and its administrative powers to some agency to be established to take them over. For instance, a division on fuel and another on transportation might be opened in the Department of Commerce. Such departments could be empowered to see whether contracts were respected in the coal industry, as they are not at present; they could cure the crying evils of reconsignment as now practiced by the coal men; they could detect monopoly of cars by producers or dealers, and any scheme by which some groups might be deprived of cars—there are a thousand and one evils that might be exposed. Then, evidence could be presented to the appropriate prosecuting authorities for action under existing laws against restraint of trade, and so on. I believe we have enough laws now on the statute books for the punishment of most of the wrongful action that might be exposed, if only these laws were enforced; if not, further laws can be provided for the purpose.

"Production, transportation, and distribution are the three chief points involved, and I think Congress can provide reasonable government supervision and the regulatory powers without government bureaucratic control or participation in private business, and with protection for the people without oppression of any industry."

Pullman Company Adopts Employee Representation

THE PULLMAN COMPANY has recently adopted a plan for arbitrating differences and improving relations between the company and its working forces through the selection of employee committees. These committees are to be empowered to confer with the management on questions of wages, working conditions and other matters of importance to the welfare of the employees. In submitting the plan to the employees, J. S. Runnells, president of the company, stated that it complies with the provision of the Transportation Act that "employers and employees shall exert every reasonable effort to adjust and settle their differences by conference between themselves." He calls attention to the fact that the plan is not intended to prevent any employee from appealing to the Railway Labor Board, providing he has been properly authorized to do so under the Transportation Act.

The plan, in brief, provides for an organization divided into two branches. One division provides representation for employees in the operating division of the company. The other takes care of the workers in the manufacturing and repair shop end of the business. At the head of the entire system stands the Bureau of Industrial Relations which is to be a supervisory body with power to make final decisions in cases where a settlement cannot be reached by the committee and representatives of the company. Members of this bureau are to be executive officers of the company, appointed by the president, and responsible direct to him. The active work of the bureau is to be under the direction of a supervisor and such assistants as may be required.

The employees in the operating branch of the company secure direct representation through the selection of local committees. In each district there are to be four local committees chosen by employees under the following classifications: One committee is to be chosen for district office forces, conductors, and storeroom clerical employees. A second committee is to represent minor supervisory forces, yard mechanics, car cleaners and storeroom non-clerical employees. Porters and maids are to choose a third committee, and a fourth committee is to be provided where "conditions justify it."

Each local committee is to consist of not less than three representatives or one committeeman for each 200 employees, and a like number of members appointed directly by the Bureau of Industrial Relations to represent the management. The local committees are to give full hearings at any time to any suggestions, complaints, or requests presented by employees or the management, provided these cannot be settled by immediate supervisory officers first.

Next above the local committee are to be seven "Zone General Committees," one from the zone of each superintendent. Each "Zone General Committee" is to consist of six employee representatives chosen by and from the district local committees, and an equal number of members selected by the Bureau of Industrial Relations. Each zone general and local committee is to select a chairman who will hold office for six months. The chairman will have the same voting privileges as other members. Employees who have been in the service of the company not less than two years are eligible for election to the committee and members are to hold office for one year.

To avoid confusion and possible delays a complete arrangement for electing committee members has been worked out. Elections are to be held in each district annually on the second Tuesday in November. In addition such special elections are to be provided as may be necessary to fill vacancies. All employees who have been in the company's service more than six months, except supervisory officers and other employees having the power of employment or discharge, are given the right to vote. The nominations and elections are to be supervised by a temporary chairman, secretary, and an election committee, one of whose members is to represent the management. A sort of primary balloting, called the nominating election, will be held five days before the regular election for the purpose of selecting candidates for the committee "to the number of twice the employee representatives" to be elected. If 25 or more employees are dissatisfied with the first count of the votes they may demand a recount at which two of their number may be present, and which will be considered final. Voting will be by secret ballot.

Within 15 days after the election of local committees, each will meet to vote on six representatives from the committeemen in their respective zones to serve on the zone general committees. The zone general committees are to meet at least once every six months in the offices of the superintendents. They will endeavor to settle all matters which have not been disposed of satisfactorily by the local committees. They are to consider all possible means of promoting cordial relations between the company and its employees.

The plan for employee representation in the company's manufacturing plants and repair shops differs somewhat in organization from that provided for the operating section of the company. In the manufacturing plant at Pullman, Ill., local committees consisting of not less than three representatives, or one representative for each 200 employees, are provided for each of the freight, automobile, rolling mill, iron, brass finish, and passenger departments. On the same basis a local committee is provided for each repair shop. These committees are to be supplemented by representatives appointed directly by the Bureau of Industrial Relations and not exceeding the number of employee representatives on each of the respective committees.

The general committee representing the entire manufacturing plant is to consist of six employee representatives selected by and from the local committees and is also to include the supervisor or his representatives, the plant superintendent, and the vice president in charge or his representatives. The same general scheme applies to the repair shops where a general committee is to be chosen, consisting of five representatives, one from each of the local committees, supplemented by the supervisor or his representative, the mechanical superintendent, and the vice president in charge or his representative. The election machinery, duties and method of procedure for these committees representing the manufacturing and repair departments is to be identical with the organization set up for the operating division.

The supervisor of the Bureau of Industrial Relations is to act as an adviser and harmonizer of the work of the various units of the organization. He is to respond promptly to any calls for his own or his representatives' services at conferences of employees, local committees or general committees. The supervisor is to investigate questions referred from a local committee to the general committee, obtaining complete information and arranging a settlement through the local committee if possible. Matters of routine are also to be arranged by the supervisor, his office is to keep record of all matters coming before the committees, and he is to take the responsibility of putting all decisions reached into immediate effect.

In submitting the plan to its employees, the Pullman Company makes it clear that "the right to hire and discharge, the management of the properties and the direction of the working forces shall be vested exclusively in the company." The employees' representation plan is designed to settle grievances arising in connection with the working out of these company functions.

Increasing the Capacity of Old Locomotives*

Suggestions for Modernizing Old Locomotives and the Possibilities of This Development

By C. B. Smith
Mechanical Engineer, Boston & Maine

IN THESE DAYS of the high cost of railroading, responsible officers of the mechanical departments realize that the necessity for reducing the cost of all locomotive operation and maintenance is more urgent than ever. Such saving can be accomplished in two ways, one by using new and modern locomotives, the other by rebuilding old types.

On the majority of our roads there are still locomotives of the earlier modern types whose general features of construction are satisfactory, and which only require modernizing to make them economical transportation units. Improvements for such classes of locomotives may include, in addition to superheaters, piston valves in place of slide valves, outside valve gears in place of Stephenson motion, and such other improvements as are usually made upon engines at general shoppings.

When setting out to rebuild a locomotive the experienced supervisor appreciates the opportunity to apply many devices and facilities which will standardize the engine in accordance with the railroad company's practice, and in so doing, reduce repairs and stores department expense in maintenance.

The aggregate of such improvements results in a locomotive which in proportion to its capacity will produce service results comparable with those of entirely modern construction, and at a cost approximately one-half that for a new locomotive of similar capacity. The difficulty in carrying forward an extensive reconstruction program, however, is in finding the shop facilities either on the railroad or among the locomotive builders in order to advance the work at a satisfactory rate of progress. Despite this difficulty the results which could be obtained from the operation of reconstructed locomotives, if they could all be rebuilt within the next few years, would justify a special effort on the part of railroad managements to bring it about.

On roads where the number of old locomotives which warrant rebuilding is sufficient to require a period of more than three years to complete the work, it would seem necessary to arrange for enlargement of shop facilities in order to hasten the reconstruction. If, however, adequate shopping facilities are not forthcoming, the improvement program for locomotives must be confined chiefly to the application of superheaters and the substitution of piston for slide valves; together with the minor but relatively important betterments that may usually be applied at the shopping period. On some roads this work alone will require six years at the present rate to equip what can rightly be called the "early-modern" locomotives.

Some of the engines built within the past ten years have developed weaknesses in frames and in parts of running gear. It has proved justifiable to reconstruct them by substituting new parts of stronger design and thus avoid recurring breakages which interrupt both the road service of these engines and the repairs to others. On roads whose traffic and service conditions now demand and will continue to demand the use of light locomotives for passenger trains and freight trains on branch lines, the better classes of the light locomotives should also receive their share of improvements along with the heavier power.

Old locomotives requiring new boilers have very generally been scrapped, but where light train service demands no heavier engines than formerly, the writer believes it advisable to rebuild such engines with radial-stay boilers, superheaters, new piston-valve cylinders, main frames when necessary, and outside valve gears. If there is to be no increase in the boiler pressure over that formerly carried by the locomotive and the valve motion has given little trouble by breakages, the Stephenson motion may be connected to the piston valves through the usual rocker-shaft connections.

When rebuilding locomotives there is a favorable opportunity for replacing old tenders as well, transferring the latter to older locomotives for spare use or as substitutes for damaged equipment. When the condition of old steel tender frames requires that they be replaced, the one-piece steel casting and a larger-capacity tank should be used, as both will reduce future expense in repairs. The success of autogenous welding eliminates any objections to the use of large steel castings for fear of breakages.

Tanks should be reconstructed in coal space to permit gravity delivery of the greatest amount of fuel that is possible at the coal gates within reach of the fireman's shovel. Application of power-operated coal pushers should be made to tanks where alterations for the gravity delivery of coal cannot be satisfactorily made and where the service conditions will show a saving in expense by its use over hand methods of shoveling forward coal while on the road or at short lay-over stations.

Discussion

The discussion following the presentation of this paper at the recent meeting of the Railroad Section of the American Society of Mechanical Engineers was unusually broad and comprehensive. Through the efforts of the committee on meetings and papers, some of the best authorities on this subject had been engaged to participate in this discussion. The first to speak in regard to increasing the capacity of old locomotives was Frank McManamy now assistant director-general of railroads. Without going into all of the details relating to those features essential to increasing the capacity of old locomotives, Mr. McManamy outlined some of the conditions essential to the successful modernization of power. It was pointed out that the value of any specialty applied for the purpose of increasing the capacity of old locomotives would be nullified unless the railroads possess a trained organization and adequate facilities for the proper maintenance of these appliances. The application of such appliances was strongly endorsed by Mr. McManamy who claimed the credit for the liberal modernization program undertaken during the period of federal control.

The application of the superheater, the stoker and the feedwater heater were commented upon as among the best measures toward modernization, but with the application of these, as with other devices, intelligent handling and adequate maintenance are essential before they can be of any real value. The simple application of these devices is not sufficient; they must be properly used and adequately maintained. In view of this fact Mr. McManamy believes that the improved locomotive terminal is, in fact, the key to the situation. So many complicated specialties are now being applied to locomotives that it is now common to refer to

*Abstract of a paper presented at the Railroad Section of The American Society of Mechanical Engineers on December 8, 1920.

these locomotives as being "full-jewelled," and in many instances the application of these specialties has proved a detriment because the railroads did not have adequate terminal facilities to insure their maintenance.

In a written discussion of the subject submitted by W. O. Moody, mechanical engineer of the Illinois Central, the necessity for adequate shop, as well as locomotive terminal facilities, was emphasized. Mr. Moody pointed to the fact that in the absence of shop facilities adequate for current maintenance of locomotives, little could be hoped for toward the modernization of locomotives upon any considerable scale. In this connection it should be remarked that the locomotive companies who, until recently, have been busily engaged on new locomotive construction, are now in a position to undertake considerable modernization work for the railroads, and in view of the possibilities in this direction it would appear to be an opportune time for the railroads to assign some of this work to the locomotive builders, where they are unable to undertake it in their own shops and are not justified in the purchase of new locomotives.

Mr. Moody spoke of the locomotive booster as one of the most promising appliances designed to increase the capacity of old locomotives. It is believed that any comprehensive plan of modernization should include consideration of the booster. It was also pointed out that the modernization of locomotives offered an excellent opportunity for the further standardization of parts to such an extent as would permit a considerable reduction in the number of parts that must be carried in stock to protect the locomotives in service. Any reduction of this character should be welcomed as a means for reducing overhead charges.

J. C. Hassett, mechanical engineer of the New York, New Haven & Hartford, also advocated the modernization of old locomotives as a means to increase their capacity and laid particular stress upon the necessity for strengthening locomotive frames in connection with this development. Some interesting facts in connection with this work as undertaken on the New Haven were described by Mr. Hassett, who said that it had been found necessary to materially strengthen the frames of certain locomotives before they could be modernized and that this had also resulted in improving their riding qualities as well as increasing their capacity.

Forceful Arguments for Feed Water Heating

Some strong arguments in favor of locomotive feed water heating were presented by E. A. Averill, vice-president of the Locomotive Feed Water Heater Company, who contributed to the discussion as follows:

"Increasing the capacity of all old or semi-modern locomotives, whenever increased capacity can be used and increasing the efficiency of those which are in a service where increased capacity will not show a return, should be the first feature to be investigated and carefully analyzed.

"You will be astonished at the returns that can be obtained in investments made to this end. As an example of what can be accomplished on even some of the more modern locomotives, built within the last six or eight years, let me quote the results recently obtained from road tests with a locomotive feed water heater which is one of the appliances mentioned in this paper. These tests were made on three different railroads and each was as carefully conducted as is possible with tests made in regular operation. On the first road, the test showed a saving, due entirely to the appliance being investigated, of $252 a month, based on coal costing $5 a ton. On the second road, the direct saving was $233 a month, and on the third it was $226 a month. This is an average for the three roads of $237 saved per month per locomotive.

"Do you not think that a net saving of over $200 a month from each locomotive will make a welcome addition to the net operating income on any railroad? The feed water heater is applicable to all kinds and classes of locomotives at a moderate expense and offers one of the quickest and most positive methods by which the capacity of a locomotive can be largely increased. It has the further advantage of not requiring any additional shop facilities for its extensive application. From the standpoint of the motive power department doing its full share towards making visible the net profits of a railroad, I would recommend a thorough study of feed water heating to be placed near the top of the list of things to be considered.

"It may interest you to know that feed water heaters, which will raise the temperature of the water from 40 deg. or 50 deg. to from 230 deg. to 250 deg., have been in successful railroad service for over three years. Furthermore, these heaters filter all the water formed from the condensed exhaust steam and return it, free from oil, to the tender. This adds about 14 per cent to the capacity of the tender and greatly extends the distance that can be made between stops for water.

"On most locomotives an increased boiler capacity can be fully used in regular service and furthermore since any boiler is most economical and most efficient at its lower rates of working, an appliance which makes the boiler larger always shows returns. It gives the increased capacity when it is needed and it gives greater efficiency when the larger capacity cannot be used. A feed water heater lies entirely in this class of equipment. It permits the boiler to deliver 9 lb. of steam for each pound of coal burned where, without the heater, it would deliver but 7.8 lb. of steam for each pound of coal. If, however, service conditions were such that only the smaller quantity of steam could be employed, a boiler equipped with a feed water heater would be operating at 65 per cent efficiency, as compared with 61 per cent for the same quantity of steam, without the heater, and thus this appliance is giving a return of one sort or another at all times.

"I have mentioned the fact that there is a return to the tender of 14 per cent of distilled and filtered water, and inasmuch as any study of increased locomotive capacity must be based on a consideration of the locomotive as a producer of economical transportation, this feature, many times, is found to be one of great importance. The ability to continue the train in operation past a water station, where it would have been compelled to stop if not equipped with a feed water heater, frequently means a difference of hours in the arrival of the train at the terminal and a very large saving of overtime wages and loss of service of the locomotive. Again this feature at periods of congested traffic frequently permits the despatcher to keep everything moving on the division and opens up the possibility of very large returns from this cause alone. Where feed water heaters have been applied to locomotives, it is almost universal that the train despatcher is one of the strongest advocates of a heater on an engine."

Superheat as a Means to Increased Capacity

In commenting on the subject of increasing the capacity of old locomotives, H. B. Oatley, chief engineer of the Locomotive Superheater Company, took this opportunity of bringing out, somewhat in detail, the features which have prompted the very extensive superheating programs which have been in vogue on many of the railroads for a considerable period. A table presented by Mr. Oatley gave some comparisons between saturated and superheated locomotives. The locomotives considered were typical of each class. The cylinders, boiler pressure and maximum tractive power were shown as being the same for both the saturated and superheated steam conditions, although many engines have had the tractive power increased when superheaters were applied under the conditions referred to later.

"By the addition of a high degree superheater," Mr.

Oatley said, "it has been demonstrated that the steam consumption per horsepower hour is reduced about 28 per cent. The figures commonly accepted as representing good practice are 27 lb. for saturated steam and 19.5 lb. for superheated steam. In the case of the 0-6-0 type boiler, the horsepower has been increased 15 per cent; for the 4-4-0 type 14 per cent; for the 2-6-0 type 13 per cent; for the 2-8-0 type 10 per cent, and for the 4-4-2 type 10.2 per cent. The maximum cylinder horsepower, using the American Locomotive Company's figures, has, by the addition of a superheater, been increased about 8 per cent.

"The ratio between boiler horsepower and cylinder horsepower, therefore, has been improved. When consideration is also given to the fact that a boiler with a superheater is at a greater advantage when worked under high rates of evaporation, for the reason that the degree of superheat increases under such conditions, the marked improvement is evident. It is very clear that the additional boiler capacity afforded by the addition of the superheater should, if possible, be utilized by providing greater maximum tractive power. When considering existing locomotives the increase in the maximum tractive power requires consideration of, 1st. The factor of adhesion. 2nd. The strength of the running gear which has to withstand the thrust of the piston.

"As in all other problems, the cost of making improvements must be balanced against the advantages which can be realized. For example: if the engine at the present time has adequate power for the work which is to be done, the expense in providing additional power would not be justified. Such cases are, however, believed to be rare, as the very large majority of existing locomotives are for all or a part of their working time required to handle every ton behind the tender that they will move. If the factor of adhesion and the strength of the parts taking piston thrust are such that an increase in cylinder tractive power can be utilized, such additional power may be attained by, 1st. Increasing boiler pressure. 2nd. Increasing cylinder diameter.

"If the amount that the maximum tractive power can be increased effectively is greater than can be obtained by boring existing cylinders, or by increasing boiler pressure, or a combination of the two, the use of new cylinders should be carefully considered. If new cylinders are applied a cylinder diameter should be selected which would permit the utilization of pistons, cylinder heads, steam chest covers, etc., and, if possible, cylinder patterns which are in use on other classes of engines on the road. It is many times found that a cylinder diameter can thus be selected which will give the desired increase in tractive power, even with a decreased boiler pressure. A decrease in boiler pressure in very many instances, particularly on the older boilers, is especially attractive, as such boilers are frequently of an age and condition which would in any event require either scrapping or operating at a lower pressure.

"Many instances will be found where for one or another of the conditions already mentioned, an increase of cylinder diameter above that which is obtainable by boring will not be advisable, and if, in such cases, slide valves are existent on the engine in question, the application of superheaters need not be foregone, as the use of piston valve steam chests fitted to existing slide valve seats has demonstrated its practicability and economy."

Modernize Eventually! Why Not Now?

In his remarks on the subject of increasing the capacity of old locomotives, J. T. Anthony, vice-president of the American Arch Company, stated that with 65,000 locomotives in service on American railroads, only 35,000 are equipped with superheaters; 43,000 with arches; 37,000 with automatic fire doors; 15,000 with power reverse gears; 2,000 with automatic driving box wedges, and only 30 with feed water heaters. The reasons commonly given for this condition, he said, "are lack of shop facilities and inability to get appropriations with which to carry on the work. But it is difficult to understand why the responsible officials who willingly make appropriations of millions of dollars for grade reductions, curve eliminations, etc., with the sole idea of increasing train loading and reducing operating expenses, should turn a deaf ear to the requests of the mechanical departments when they have the same object in view.

"The railway shop equipment is woefully inadequate at the present time; but this will not serve as an excuse for the fact that 22,000 locomotives are being operated today without brick arches. This simple device can be installed in the round-house in less than 24 hours, and its maintenance not only does not require any increase of the round-house force; but effects a reduction in boiler repairs and engine failures. Many years of use and a large number of carefully conducted tests have shown conclusively that the arch is good for a fuel saving of 7 to 14 per cent, or for an increase in boiler capacity of 8 to 16 per cent. To use a conservative figure the arch is good for an average reduction in fuel consumption of 10 per cent, or an increase in boiler capacity of 11 per cent. Under the present condition of high price of fuel each dollar invested in the brick arch for old locomotives is

COMPARISON OF SATURATED AND SUPERHEATED STEAM LOCOMOTIVES OF VARIOUS TYPES

Line		4-4-0		4-4-2		2-6-0		0-6-0		2-8-0	
		Sat.	S.H.	Sat.	S.H.	Sat.	S.H.	Sat.	S.H.	Sat.	S.H.
1	Cylinders	20" x 24"		22" x 26"		19" x 26"		20" x 26"		21" x 30"	
2	Wheel diameter (drivers)	69"		80"		63"		51"		63"	
3	Boiler Pressure	190#		205#		200#		180#		210#	
4	Tractive Power (maximum lb.	22470		27470		25300		31100		37500	
5	Weight on Drivers, lb.	94000	96000	124100	126000	125500	128000	144600	147600	172500	176500
6	Factor of Adhesion	4.18	4.27	4.51	4.59	4.96	5.06	4.65	4.74	4.6	4.7
7	Heating surface, tubes sq.ft.	1957	1035	2474	1335	1732	948	1750	987	3194	1737
8	Heating surfaces, flues " "	-	402	-	506	-	392	-	412	-	650
9	Htg.surf.firebox & water tubes sq.ft.	232	232	166	166	158	158	156	156	189	189
10	Total " "	2189	1669	2640	2007	1890	1498	1906	1555	3383	2576
11	Superheating Surface " "	-	314	-	435	-	296	-	306	-	530
12	Combined Total " "	2189	1983	2640	2442	1890	1794	1906	1861	3383	3106
13	Total Water Evaporated (1) Lb.	31530	25930	32228	25728	26720	22120	28430	23610	40960	32510
14	Steam per ind. h.p. hour Lb.	27	19.5	27	19.5	27	19.5	27	19.5	27	19.5
15	Boiler Horse Power	1165	1330	1196	1320	999	1135	1052	1210	1515	1667
16	Boiler H.P. Increase %	-	14	-	10.2	-	13	-	15	-	10
17	Maximum Cylinder Horsepower (2)	1265	1369	1655	1786	1202	1300	1199	1297	1543	1667
18	% Boiler H.P. of Cylinder H.P.	92.3	97.5	72.3	74	82.9	87.4	87.7	93.2	98.1	100

(1) American Locomotive Co.'s method used but figures are those used by Locomotive Superheater Co.
(2) American Locomotive Co.'s figures used.

good for at least a five dollar reduction in operating expenses.

"There are only three methods of increasing the heating surface of an existing firebox, i. e., by the installation of a combustion chamber, or arch tubes, or thermic syphons. At the present time there are only 6,000 locomotives equipped with combustion chambers, and something over 100 equipped with thermic syphons, this device being of rather recent origin. Many of the existing boilers can be improved by adding combustion chambers when new fireboxes are put in, thereby increasing the firebox volume and reducing the oft-time excessive flue lengths, and in other cases new back-ends should be put on when it is necessary to renew fireboxes of narrow and antiquated designs, thereby increasing the grate area and firebox volume. Too little attention has been paid to the possibility of improvements in old boilers by these means. While it is true that the addition of superheaters and brick arches often reduces the demands made upon it, there is still a lot of room for improvements in the firebox, particularly in regard to the firebox as a furnace wherein fuel may be burned efficiently. In this connection, we might call attention to the poor designs of ash-pans on thousands of our present locomotives, on many of which it is impossible to secure an adequate air supply. Such conditions can be remedied at comparatively little expense and effect a large saving in fuel.

"As a tip to the skeptics who are prone to wait for someone else to demonstrate that improvements are possible, I quote the following figures obtained from tests of Consolidation locomotives on a large western road where the operating conditions were such that the locomotives made 40,000 engine miles per year; the cost of coal being $4.50 per ton on tender, which is much below the average price at the present time.

	Annual fuel consumption per locomotive		Annual saving	
	Tons			
Saturated Consolidation without arch	7,500	$33,750	.....	
Saturated Consolidation with arch	6,752	30,384	$3,366	(Saving credited to brick arch)
Superheated Consolidation with arch	4,989	22,450	7,934	(Saving credited to superheater)
Superheated Consolidation with arch and syphons	4,257	19,156	3,294	(Saving credited to thermic syphon)

"The addition of the three devices mentioned resulted in an annual saving of $14,594 per locomotive; this 44 per cent reduction in the fuel cost being accompanied by an increase of approximately 20 per cent in tonnage hauled. And this does not represent the limit to improvements, for there are other devices that might be added, and changes made that would result in still further improvements.

"In the last paragraph of his paper Mr. Smith voices the hope that the discussion at this meeting will result in outlining some practical action to be taken by the various roads to hasten the work of reconstructing old locomotives, and states that the application of all desirable auxiliaries is prohibitive without radical provision for the carrying out of such a program. We join him in that fond hope, but, in our opinion, it will be necessary to first bring about a radical change in the attitude of many railway officials before any adequate provisions for such a program can or will be made.

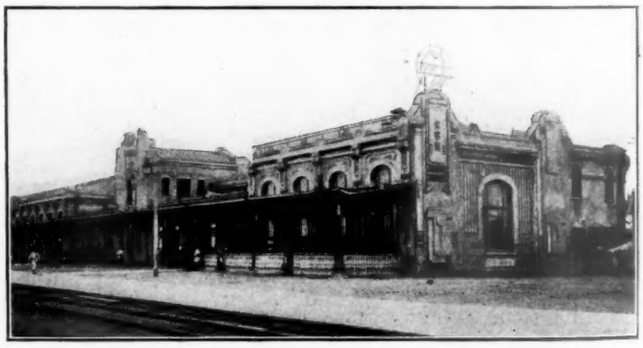
"The many improvements that have been made in locomotive design in the past 10 or 15 years have not come about in answer to any loud and sustained cry from the railroads for more efficient locomotives. The railroads asked for larger and more powerful locomotives; but the devices that have made the locomotives of increased capacity and efficiency possible, have been largely left to the ingenuity of the railway supply companies and, in a smaller degree, to the locomotive builders. The development of the several well-known fuel economy and capacity increasing devices has been due to the labor and efforts of men who have left the railway service, in many cases on account of the lack of interest of the railroad in the device which the individual was trying to get perfected and used.

"If we can judge the future by the past, there will be no radical provisions made for the carrying out of a locomotive reconstruction program until the officials of the mechanical and operating departments awake to a full realization of the possibilities of reducing present operating expenses by the maintenance of a high standard of efficiency of *all* their locomotives, and by their urgent demands and intelligent presentation of facts, convince the higher authorities—those who have to dig up the money—of the feasibility and desirability of such a program."

Superpower Survey

THE ANNUAL REPORT of the Secretary of the Interior contains the following, regarding the superpower survey: "Congress at its last session placed upon this department the duty of making a special investigation of the possible economy in fuel, labor, and material that could be secured by electrification of the railroads and industries of the region between Boston and Washington. The plan contemplated is a unified system of power generation and power distribution, and its investigation has been called the superpower survey. This is now under way. The engineering profession and large business interests are giving this project support that is at once an indorsement and a promise of public confidence. The engineering staff engaged in this intensive study of the power needs and the means of meeting that demand includes men who have done pioneer work in applying electricity to the use of man; while serving on an advisory board are men of vision and experience, representing our larger railroads as well as electric railways, our manufacturing and mining industries, and the engineering and chemical professions, busy men who have accepted my invitation to help direct this investigation along lines of greatest practical usefulness. Every industry that has to do with either making power or using power is giving generous co-operation.

"The area being studied, while only a small fraction of the United States—2 per cent—uses 24 per cent of the electic output of the central stations of the country and produces about 47 per cent of its manufactured products. It is properly termed the finishing shop of American industry. The report of this investigation will be completed June 30 next, and its purpose is to give an engineering solution to the problem of the demand of the nation for greater production and better transportation. That answer is electrification, but its details must include the accurate statement of costs in capital and of savings in coal and labor. I believe the report will deserve public confidence."



Station on the Chinese Eastern Railway at Harbin, Manchuria

Express Consolidation Approved by Commission

Combination of Companies Into American Railway Express Approved Despite Some Protest

THE CONSOLIDATION of the express transportation business and property devoted to that business of the Adams, American, Wells Fargo & Co., and Southern express companies into the American Railway Express Company was approved and authorized in a decision by the Interstate Commerce Commission announced on December 20. An abstract of the commission's decision follows:

At the beginning of the period of federal control there were seven express companies operating over the railroads of the United States, the Adams, American, Wells Fargo, Southern, Great Northern, Western, and Northern express companies. Of these, the first four named operated over approximately 92 per cent of the railroad mileage of the country, and transacted approximately 95 per cent of the express business of the country. After the government assumed control and operation of the railroads the director general of railroads declined to carry out the separate contracts between the railroads and express companies under which the express business had theretofore been conducted, but advised the express companies that if they would form a single corporation he would make a contract with that corporation to conduct the express business as his agent. In June, 1918, the Adams, American, Wells Fargo, and Southern express companies, which jointly had secured by lease the express business and the property devoted to that business of the other express companies hereinbefore mentioned, entered into a contract with the director general by which it was provided that the express companies would cause to be organized a corporation to carry on the express transportation business for the director general. Thereupon, the American Railway Express Company was organized under the laws of Delaware and, under a contract with the director general, took over the express business upon the railroads under federal control as agent of the director general. The Adams, American, Wells Fargo, and Southern express companies exchanged all the property devoted to them to the express transportation business, estimated by the director general to be of the value of $30,000,000, as of November 30, 1917, together with $3,000,000 in cash for working capital, for the stock of the American Railway Express Company. Including additions and betterments not charged to operating expenses made between the latter date and July 1, 1918, the authorized issue of capital stock of the applicant at par aggregated $34,642,110.

A number of protests against the approval and authorization of the consolidation, in the form of resolutions adopted by commercial organizations, letters, and telegrams, have been received by us. In most of these complaint is made that the service rendered by applicant was and is inadequate and unsatisfactory, and this is attributed, largely to the lack of competition. In a number of others the policy of at least two of the predecessor companies with respect to the adjustment of claims which arose prior to the consolidation is criticised, and it is urged that if the consolidation is authorized suitable provision should be made to protect the rights of claimants.

The railroad commissions or other public utilities commissions of 33 of the states were represented at the hearing. Only four states voiced objections to granting the application on ground other than the matter of old claims against the Adams and Southern express companies. The State Corporation Commission of Virginia offered evidence regarding the claim situation, but the other state commissions offered no evidence. A representative of the Richmond Chamber of Commerce also testified with respect to the claims situation. Representatives of the National Poultry, Butter & Egg Association, which has 1,200 members scattered throughout the country, and the Boston Fruit & Produce Exchange, which has a membership of 900, offered evidence to show that applicant's service was inadequate. They contend that this is due to lack of competition and are opposed to the continuance of the consolidation. A representative of the National Industrial Traffic League, an association of commercial organizations, firms, and individuals, located at points throughout the country, appeared on behalf of that organization, the Boston Chamber of Commerce, and the New England Traffic League in support of the application.

Applicant admits that its service has been and is unsatisfactory, but attributes this to abnormal conditions growing out of the war.

Applicant urges that the service rendered by it, admittedly not satisfactory, has been and is far better than could have been performed by the predecessor companies, because the unification of their facilities under the one management effected by the consolidation permitted better distribution of those facilities and rendered practicable many economies impossible under separate operation. It is said that formerly each of the predecessor companies had its quota of vehicles traversing the same routes both in the pick-up and delivery service, carrying on many occasions only partial loads. The consolidation enabled this equipment to be handled as a whole and distributed throughout the cities so that the vehicles were utilized more nearly to their capacity, besides avoiding duplication of service.

It was testified that great savings had been accomplished by reason of one company's transacting the business in lieu of four as formerly, through the elimination of duplicate wagon service, duplicate offices in various cities, the establishment of a uniform accounting system and the consolidation of various departments of express business into one. It is estimated that these methods have reduced the cost of operation over $13,000,000 annually below what it would have cost the former companies.

Applicant states that better service also results by reason of the fact that the consolidated company routes traffic via the direct lines, thus reducing distance and time of transportation. It is said that with two or more companies in the field it was natural that those companies should endeavor to secure the long haul on traffic. As an illustration, it was testified that formerly three companies operated in New York City, the American, Adams, and Wells Fargo. Shipments from New York to Pittsburgh, Pa., could be delivered at destination by any one of the three companies. The American Express Company operated over the New York Central lines, and its route to Pittsburgh was via Ashtabula and Youngstown, Ohio. The Adams Express Company operated over the Pennsylvania Railroad, the direct route, and the express matter despatched by it would be delivered in Pittsburgh before the traffic handled by the American had passed Buffalo en route to Pittsburgh.

The commissions of Florida, Louisiana, Mississippi, and Texas oppose without reservation the granting of the application on the ground that a monopoly will be created which can never be broken; that the competing railway systems which are to come into existence under the plan of this commission in accordance with the provisions of the interstate

commerce act ought, in the public interest, so far as possible, to be served by competing express companies; and that hence this consolidation must necessarily be out of harmony with any plan which we may make for consolidation of rail lines.

It is urged by applicant that the consolidation of these companies was not voluntarily accomplished for the purpose of securing a monopoly of the express business but that it was compelled by the conditions and circumstances existing at the time. It is insisted that the approval by us of the organization and its continuance in business will not destroy competition; that applicant at present competes for a large part of its business with the parcel post, which operates on all lines in the United States; that in normal times it competes for package business with fast freight lines hauling less-than-carload traffic; and that it is in direct and keen competition with motor trucks which operate over considerable distances between principal cities in general. It is further said that it is doubtful if the old companies would resume business. Officials of the Wells Fargo, Adams, and Southern express companies testified that they would advise those companies against returning to the express transportation business. The provisions of the interstate commerce act with respect to prospective consolidation of rail carriers contemplate that competition shall be preserved but do not require that competition shall be inaugurated or increased.

On behalf of the Wabash Railway it is stated that on June 1, 1911, that road entered into a contract with the Wells Fargo providing for the conduct of the express business on the lines of that carrier for a period of 20 years commencing August 1, 1911; that when the government assumed control of the railroads the Wabash Railway was unable in its own name to continue operation under the contracts, but that under an arrangement with the director general, who declined to be bound by any of the contracts between the express companies and the rail carriers, the Wells Fargo continued to operate over the lines of the Wabash Railway; that when the consolidation of the express companies was effected the Wells Fargo announced that it was no longer bound by the contract with the Wabash; and that since the termination of federal control the Wells Fargo and the consolidated company have declined to be bound by the terms of the contract. It appears that the Wabash Railway brought suit to recover under the contract approximately $190,000 from the Wells Fargo for services rendered the express company during the period of federal control preceding the consolidation of the express companies and that this suit is pending in the courts. The Wabash Railway asks that we impose as a condition precedent to the approval of the application here in question that applicant assume and discharge the obligation of the Wells Fargo, or that the consolidated company assume and carry out the contract referred to, subject to the determination of its validity and enforceability as against the Wells Fargo by a court of competent jurisdiction. The president of the Wells Fargo testified that that company was able and willing to pay any judgment rendered against it in the courts. We think that this controversy between carriers is one which should be determined by the courts and that the imposition of the condition requested by the Wabash Railway is not such as is necessary or required in the public interest.

The consolidation having been accomplished, there is today no actual competition between express companies. Even prior to federal control and the existing consolidation, there was practically no competition so far as express transportation rates and charges were concerned, express rates being made on the block system prescribed by us and applying alike to all express companies. While to some extent there was competition with respect to the service rendered, the economies and elimination of wasteful services resulting from the consolidation would appear to be more than sufficient to offset any advantages to the public growing out of the separate operation of the four express companies, even if, on a denial of this application, they should resume operations as such, as to which there appears to be some doubt. As to the rates and practices of the consolidated company, we may regulate and control them to the same extent as if they were separate.

While the methods of the Adams and Southern express companies in the settlement of claims against them merit the severest condemnation, we are not persuaded that the approval by us of the consolidation, if otherwise in the public interest, should be conditioned as urged by certain of the protestants so as to require the constituent companies to provide for the handling of claims and the service of legal process in the jurisdictions where they formerly operated and to revive claims which may have been barred by the two-year-and-one-day limitation with respect to filing suit. We are not authorized under the interstate commerce act to approve the maintenance of the existing consolidation and in connection therewith to prescribe terms as to the manner in which these claims shall be handled as a condition of the continuance of the consolidation. Nor are we authorized to require the resumption of operation by the constituent companies. We are merely empowered to approve and authorize the existing consolidation. The principal objections raised are that claimants must bring suit in New York and that many of the claims, while meritorious, are too small to justify the expense of suit. Under such circumstances hardship obviously results to the claimants, but that does not justify us in requiring the express companies, as a condition precedent to our approval of the consolidation, to waive any legal defenses which they may elect to make in the courts. We have repeatedly held that we have no jurisdiction over claims for loss and damage. However, we do have jurisdiction to determine the reasonableness and propriety of carriers' published rules and regulations relating to transportation.

Upon consideration of all the facts and circumstances of record we are of opinion and find that the public interest will be promoted by the consolidation. An order will be entered approving and authorizing the consolidation.

Commissioner McChord Dissents

Commissioner McChord filed a dissenting opinion in which he said, in part:

The authorization of the consolidation will destroy every semblance of competition in the express business, both as to rates and service, thus confirming an existing monopoly. It may be true that there is no competition as to express transportation charges, but prior to the consolidation there was competition with respect to service which was of benefit to the public. It will now be practically impossible for another company to enter into the express business in competition with this consolidated company. We, of course, may regulate the rates and certain of the practices of the American Railway Express Company, but we will have no control over its attitude toward the public. We can not require it to render to the public that efficiency, courtesy, and fair dealing which competition compels.

It is my view that the time has come when the carriers should give serious and further consideration to the question of conducting the express business themselves. That business has reached such proportions that it is now a parasite upon the freight traffic of the railroads. They should no longer permit outside agencies to transact it. It can be clearly demonstrated that the carriers can readily adapt their existing organization, equipment and facilities to enable them to handle the additional traffic. It would need but slight extension of certain branches of their organization, the acquisition of some additional equipment and possibly some enlargement of present facilities to place them in a position to satisfactorily conduct the express business at considerably less expense than it is being done by the express company, and with greater profits to the railroads.

Commissioner Meyer also dissented.

Labor Board Denies Jurisdiction Over Interurbans

Decision Holds That Transportation Act Confers No Authority to Regulate Electric Railways

THAT THE RAILROAD LABOR BOARD has not been conferred jurisdiction over the wages and working conditions of employees on electrically operated interurban railways, by the terms of the Transportation Act, and that therefore the interurban lines brought before the Board in its recent hearings on demands of employees of short lines for the same rates of pay awarded to employees of Class 1 roads are dismissed, is the substance of the first part of the Board's decision in this case. The ruling is dated December 11, but was not made public until a week later.

The petitioners in the case are the Brotherhood of Locomotive Engineers, the Brotherhood of Locomotive Firemen and Enginemen, the Brotherhood of Railroad Trainmen, the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees, the Brotherhood of Railroad Signalmen of America, the Order of Railway Conductors, the American Train Dispatchers' Association, the Railway Employees Department of the American Federation of Labor, the International Association of Machinists, the International Alliance of Amalgamated Sheet Metal Workers, the Brotherhood of Railway Carmen of America, the International Brotherhood of Electrical Workers, the International Brotherhood of Boilermakers, Iron Ship Builders and Helpers of America, the International Brotherhood of Blacksmiths, Drop Forgers and Helpers, the Order of Railroad Telegraphers, and the United Brotherhood of Maintenance of Way Employees and Railway Shop Laborers.

The respondents in the case are the Spokane & Eastern Railway & Power Company (Inland Empire), the Interurban, the Fort Dodge, Des Moines & Southern, the Piedmont & Northern, the Lackawanna & Wyoming Valley, the Pacific Electric, the Denver & Interurban, the Hudson & Manhattan, the Chicago, Lake Shore & South Bend, the New York, Westchester & Boston and the Washington & Old Dominion.

The Labor Board's Decision

The interpretation of the Transportation Act included in the Board's ruling is of particular interest and the entire decision is therefore reproduced as follows:

Representatives of employees on the electric railways named herein have brought before the Labor Board for consideration and determination, disputes between these railways and certain of their employees. All the organizations which are petitioners do not have a dispute with every respondent railway, but each petitioner has a dispute with one or more of the respondents and each respondent has a dispute with one or more of the petitioners. The railway representatives having questioned the Labor Board's jurisdiction, this decision is upon that question solely.

The ground upon which jurisdiction is questioned is that these railways are interurban electric railways not operating as a part of a general steam railroad system of transportation, and that they are therefore excepted from Section 300 of the Transportation Act, 1920, Sub-section 1 of which is as follows:

> "(1) The term 'carrier' includes any express company, sleeping car company, and any carrier by railroad, subject to the Interstate Commerce Act, except a street, interurban, or suburban electric railway not operating as a part of a general steam railroad system of transportation."

It is clear that Congress intended to exclude certain kinds of transportation facilities from the jurisdiction of the Labor Board. So far as the railways here in question are concerned, if they either are not interurbans or are operated as a part of a general steam railroad system of transportation, then they are not excluded and remain within the Labor Board's jurisdiction

The 11 railways divide themselves, roughly speaking, into two groups. In one are the Hudson & Manhattan, the New York, Westchester & Boston, and the Denver & Interurban, which do almost exclusively a passenger business. In the other group are the eight remaining railways, which in addition to a passenger service, do a more or less extensive freight interchange business with steam trunk lines, carry mail and express, and, in general, perform the same public service as steam lines. In each group are roads which operate equipment jointly with steam trunk lines. They range in size of road operation from the Lackawanna & Wyoming Valley, with 20 miles of road, to the Pacific Electric, with 600 miles. Several are interstate in their operation.

While no two railroads are exactly alike, they are generally similar as to method of operation and character of employment, except for the Hudson & Manhattan, whose equipment and operation are similar to that of the Interborough and the Brooklyn Rapid Transit Companies of New York. There are also certain other features characterizing one or more of the railways which, being emphasized by the petitioners to prove that particular railways are within the jurisdiction of the Labor Board, deserve careful consideration. Such consideration will obviate the necessity of presenting in detail the facts about each railway. The points to consider are as follows:

(1) That this or that railway is physically an interstate property;
(2) That it performs the principal functions of a steam railroad;
(3) That its charter permits it to operate either by steam or by electricity;
(4) That it has at some time in the past operated by steam;
(5) That to a certain extent it operates jointly with a steam trunk line certain equipment and makes certain joint use of track;
(6) That its stock is entirely or partially owned by a steam trunk line;
(7) That it does a considerable interstate business;
(8) That it has received a freight increase from the Interstate Commerce Commission under Ex Parte 74.

Noting the further fact that none of the respondents is under the same operating management as any general steam railroad system, as hereinafter defined, what bearing do the above described characteristics have on the question whether any of these railways is an interurban, and whether it is operating as a part of a general steam railroad system of transportation?

(1) The interurban status of an electric railway is not affected by the fact that it operates between states. (See Spokane & Inland Empire Railroad Company v. United States [241 U. S. 244], in which the court says: "The railroad company operated a street railway system in Spokane and several interurban electric lines, one of which existed from Spokane to Coeur d'Alene, Idaho, a distance of about 40 miles. . . . In addition to its passenger trains the interurban line also operated freight trains.")

(2) The fact that an electric railway performs the functions of a steam railroad is characteristic of a large number of so-called interurban railways and is not regarded by the courts as bearing upon the roads' interurban status. (See Sandquist v. Ft. Dodge, Des Moines & Southern [159 Iowa 194], in which the court says: "The defendant is an interurban railroad operating a line of road for the carriage of passengers and freight between the cities of Des Moines and Fort Dodge, run by means of electricity.") The distance between Des Moines and Fort Dodge is 85 miles and the service rendered, except for minor details, is primarily that which a steam road would perform.

(3) That the road is chartered so that either steam or electricity may be used as a motive power has no practical bearing on the status of the road. The important thing is the actual nature of its operation.

(4) Similarly, the past history of the railway cannot be considered as important as its present actual operation. To hold otherwise would raise a number of awkward questions.

For instance, the Washington & Old Dominion and the Piedmont & Northern are doing the same kind of business as the Spokane & Inland Empire, and the Fort Dodge, Des Moines & Southern, both of which are recognized interurbans. How can it fairly be said that the Washington & Old Dominion, and the Piedmont & Northern are not interurbans

merely because one once ran by steam and the other may now run by steam if it so elects? How long must a road have operated by steam to prevent it subsequently becoming an interurban when the motive power changes to electricity? or, having once been operated by steam, how long must it operate by electricity before it may become an interurban? Does the fact that a road once operated by steam prevent it from ever becoming an interurban?

(5) The joint use of equipment and trackage is not regarded in the case of the Pacific Electric as disqualifying it from being an interurban. (See decision 1961 of the California Railroad Commission, which, speaking of the Pacific Electric, says: "Applicant operates a large suburban and interurban railway system in southern California, and its financial condition has heretofore been investigated on several occasions when applications were made for the issuance of securities."

(6) Neither does the above decision consider important the fact that the Southern Pacific owns the stock of the Pacific Electric, and that certain of the officers of these two companies are the same persons, or that certain equipment is operated jointly with the Southern Pacific.

(7) The amount of interstate freight business is immaterial on the question whether or not an electric railway is an interurban. (See Sandquist v. Ft. Dodge, Des Moines & Southern Railroad, cited above.) The interstate freight business of the Fort Dodge, Des Moines & Southern amounts to approximately 80 per cent of its total business.

This feature of interchange of freight, however, raises a further question: It is argued that such interchange, which is sometimes accompanied by interstate passenger traffic, brings the railroad within the definition—"Part of a general steam railroad system of transportation," thus raising the questions: (1) What is a general steam railroad system of transportation? (2) What constitutes operating as a part of a system?

The word "system," as used throughout the Transportation Act, 1920, means a system similar to the Pennsylvania System, the Baltimore & Ohio System, the Southern Pacific (Pacific System), etc. The word "system" is used, in other words, in customary railroad parlance. (See also the opinion of the court in Hines v. Dahn—267 Fed. 105, where the Illinois Central Railroad is referred to as a system within the Federal Control Act.) Such roads, and others, doing a general railroad business with country-wide connections, are general steam railroad systems within the meaning of the Act.

It is to be noted, also, that the Act specifically says "a" system of transportation, which cannot be interpreted to mean "the" systems of transportation in the United States, or a group of systems.

Operating as a part of a system means, as a practical matter, operating as an integral part of that system and under a unified control. If there is a physical connection and a common control and the lines are used together as one general system, the definition of the Act would cover and include such a road. But when there is separate control and management, mere contiguity at points of connection, or even some common officials, would not be a decisive test. If a road is under such separate control that its officials can manage its own business, make its own contracts and regulate its own affairs, then it is not a part of another.

The idea that engaging in a large interstate freight business, in the course of which it interchanges cars with several steam trunk lines, brings a railway within the term "operating as a part of a general steam railroad system of transportation," is negatived by the phraseology of various sections of the Transportation Act of 1920.

Interurbans Are Excluded from Provisions of the Act by Three Clauses

Interurban electric railways are excluded from the provisions of the Act under three heads:

(a) In all matters pertaining to federal control, namely, Section 204-A: "reimbursement for deficits"; and Section 209-A: "guarantee to carriers," the exclusion covers an "interurban electric railway which has as its principal source of operating revenue, urban, suburban, or interurban passenger traffic, or sale of power, heat and light, or both."

(b) In Section 1, Sub-section 22, forbidding extension and further construction without authority from the Interstate Commerce Commission; in Section 20-A requiring the assent of the Interstate Commerce Commission to the issuance of securities; and in Section 300, giving the Labor Board jurisdiction, the exception is "a street, interurban or suburban electric railway not operating as a part of a general steam railroad system of transportation."

(c) In Section 15-A, dealing with rates, are excluded "interurban electric railways, unless operated as a part of a general steam railroad system of transportation or engaged in the general transportation of freight."

The contention that interchange of freight makes an electric line part of those trunk lines with which it interchanges assumes that Section 300 includes by inference exactly what Section 15-A specifically states, namely, . . . or engaged in the general transportation of freight." If that is what Section 300 means, then the use of the words, " . . . or engaged in the general transportation of freight," as used in Section 15-A is surplusage. As a matter of fundamental legal construction such an assumption is unsound.

On the other hand, Congress must be assumed to have spoken with discrimination. The purpose here of differentiating in the phraseology of the two sections was to differentiate in the meaning. Had Congress meant to describe the same kind of railways in these two sections, it would have described them in similar terms.

The Labor Board is not bound by interpretations of the Interstate Commerce Commission. Nevertheless, it should give careful thought to such interpretations where the Labor Board itself is interpreting identical language.

For example, Section 20-A, above quoted, includes interurban railways in exactly the same language as Section 300 Under Section 20-A the Interstate Commerce Commission has not thought itself warranted in assuming jurisdiction over the issuance of securities by interurban roads, some of those here in question. In other words, the Interstate Commerce Commission does not regard engaging "in the general transportation of freight" as equivalent to "operating as a part of a general steam railroad system of transportation." And again, directly interpreting Section 300 with regard to the nominations of members of the Labor Board, the Interstate Commerce Commission excluded from participation in such nominations both interurban electric railways and the most important organization of employees engaged in operating these railways.

(8) The railways have received a freight increase from the Interstate Commerce Commission. They have not received a passenger increase. The reason they have received the former and not the latter is that the freight business done by interurban roads is sufficiently general to give Congress jurisdiction over the matter. Passenger traffic, on the other hand, is so local that Congress cannot properly regulate it. Therefore, such rates are left to the state commissions.

Labor Board and Interstate Commerce Commission Are Interdependent

Apart from the significant exclusion of the Labor Board from jurisdiction over railways engaged in the freight business, it is obvious as a practical matter, that the granting by the Labor Board of a wage increase, without corresponding authority to the Interstate Commerce Commission to raise rates, would result in serious complications. The Labor Board and the Interstate Commerce Commission were clearly intended to be interdependent in this matter. Such intention would be nullified if the Labor Board assumed jurisdiction where the Interstate Commerce Commission was without it. And so it does not seem to the Labor Board that any or all of the eight factors above discussed materially affect the question of jurisdiction. It remains to say a word regarding the matter of statutory construction and the purpose of Congress.

In construing Section 300 of the Transportation Act, 1920, in reference to the railways before the Labor Board, it is well to bear in mind the settled rules of construction and interpretation. Whether an act be remedial or not, it is to be strictly construed as to the classes of people, citizens, parties and subjects included, and none are to be included by any intendment not expressed in the terms used.

The intention of Congress becomes material only in case of an ambiguity in the language of the Act. While such an ambiguity does not exist here it nevertheless is not inappropriate to consider what the intention of Congress was.

It is plain that Congress has dealt in discriminating language with interurban electric railways throughout the Interstate Commerce Act and the Transportation Act, 1920, and has consistently treated them differently from steam lines. Congress has done this because there is a material difference generally speaking between steam and electric roads in the matter of equipment, nature of service and standards of employment. With a few exceptions, one service is general, the other is local. The difficulty is that a few electric railways have developed far beyond the original idea of an interurban. They have now come to rival many steam lines in service and size. And still the definition of what is an interurban has

likewise broadened, not only by popular conception, but by legal, statutory and executive decree, so that the Pacific Electric operating upward of 600 miles of road, the Fort Dodge, Des Moines & Southern, owning 2,400 box and coal cars, and the Spokane & Inland Empire, crossing state lines and operating passenger and freight trains, are all judicially labeled "interurban." It is difficult, if not impossible, to get away from this definition.

All the respondents are electrically operated. Some have been judicially determined to be interurban; the remainder either are so similar in character that they cannot be successfully differentiated or are otherwise clearly excluded by the words of the Act. Neither are the respondents operating as a part of any general steam railroad systems of transportation. Therefore, the Labor Board must decide that it has no jurisdiction over any of these respondents, and it herewith dismisses the applications of the petitioners for further hearing.

Labor Board Issues Warning to Employees and Carriers

A warning to railroad employees and transportation officers to obey the spirit of the Esch-Cummins law in submitting wage questions to the Labor Board before taking strike votes was issued by the board on December 17. The warning followed a hearing at which officers of the Order of Railway Conductors and Brotherhood of Railroad Trainmen were called upon to explain why they had taken a strike vote on the Norfolk & Western. The board set the hearing in the Norfolk & Western dispute between the employees and the company for January 3, but announced it had no objection to the parties continuing their discussions in the meantime.

"The importance of maintaining the uninterrupted operation of the railroads must be manifest to every one," the board's warning to the carriers and unions says. "Congress, by the Transportation Act of 1920, made it the duty of all carriers and their officers, employees and agents to exert every reasonable effort and adopt every available means to avoid any interruption to the operation of carriers growing out of labor disputes. The Act further makes it the duty of the carriers and employees directly interested in the dispute to confer, and if possible decide such disputes in conference. Any dispute not decided in such conference is required by the Act to be referred by the parties to the United States Railroad Labor Board for its decision."

Calling upon the roads to obey the law and refrain from intimidating employees, and advising the unions not to issue strike ballots, but to refer their grievances to the Board, the statement concludes:

"The Board for its part will continue its efforts to expedite the hearing and decision of disputes referred to it."

Hearing of the request for several changes in rules and working conditions, submitted to the Board last April in connection with the wage demand covered by the $625,000,000 wage increase granted on July 20, was set for January 10.

COLOR OF CYPRESS HEARTWOOD NO CRITERION.—Southern bald cypress is about the most variable in color of any of our native woods, and in different localities is known as red cypress, yellow cypress, white cypress, and black cypress. There is a rather prevalent belief that cypress with dark-colored heartwood is the most durable, but the opinion of the U. S. Forest Products Laboratory is that as far as durability is concerned the color of the wood makes very little difference. In service records obtained by the laboratory, any difference in the length of service of red cypress and yellow cypress appears to be due entirely to a difference in the amount of sapwood in the timbers. Cypress trees with light-colored heartwood usually have more sapwood than those with dark-colored heartwood, and sapwood is not resistant to decay. The important thing if durability is desired appears to be to select the heartwood of cypress regardless of its shade

Pennsylvania Officers and Men Get Together

ABOUT 310 representatives of the four train service brotherhoods on the Pennsylvania were in attendance at a meeting in Philadelphia on December 21 to talk over with the operating officers of the railroad the matter of labor committees or boards of adjustment.

General W. W. Atterbury, vice-president in charge of operation, in opening the meeting spoke of the decentralization of the organization of the Pennsylvania system into four regions and said:

"I have waited, with a great deal of interest, to see whether the employees themselves would recognize that with the change in the system organization there could also come a similar change in the method of handling all matters as between the management and the employees. It could mean to the men exactly what it means to the public—that is, quick and intelligent decisions.

"It has been clear to me that the existing overlapping of the schedules, or contradictory schedules, on the divisions or in the regions, would, necessarily, create a situation which the men would themselves recognize, and would voluntarily organize themselves to provide regional committees to correspond with our regional organization.

"I have been willing to await this time, but our hands have been forced, I feel, by the decision of the Labor Board that they have no jurisdiction in regard to Boards of Adjustment—the Boards of Adjustment can only be formed by the voluntary act of the management and its employees.

"Three principal points should be discussed:

"First: Regional committees;

"Second: The principles of schedules—whether System, Regional, or Divisional;

"Third: The setting up of machinery to promptly handle controversial questions.

"The railroad officers who are present," he further said, "represent the management of a property in which about two billion dollars is represented, approximately half of which is in bonds, and the other half in stocks. The bonds are largely owned by life insurance companies, savings banks, and other financial institutions, and in the stability of these bonds a very large majority of the people of the country are directly or indirectly interested, through their life insurance policies, or their deposits in the savings banks. The other half of this great investment—that is, the stock—is owned by some 140,000 stockholders, almost half of whom are women.

"Bear in mind that the policy of the Pennsylvania management has never been to pay large returns to its stockholders. The aim has been to assure to stockholders a reasonable return upon which they could depend. Furthermore, the Pennsylvania Railroad has no watered stock and the records will show that over a period of nearly 75 years it has paid regular dividends to its stockholders averaging approximately six per cent.

"The duty of the management is threefold. They have a direct duty to see that the capital already invested shall be given a fair return. Surely that duty is owed to those who have entrusted their money to our care. Further, if a fair return is not earned, new capital for improvements, extensions and betterments cannot be obtained. The management also has a duty to the public. If the railroad is granted reasonable and fair rates, the public in return is entitled to efficient and satisfactory service. Last, but not least, is the duty of the management to the employees—that is: good wages, good working conditions, and discipline fairly and impartially maintained. Kindness, courtesy and consideration are not incompatible with good discipline. Lax discipline is not kindness, for in your occupation lax discipline spells death and disaster.

"The employees, equally with the management, have their responsibilities. Given fair wages and fair working conditions, the management has the right to expect and exact from the employees an honest day's work; prompt, willing and cheerful observance of orders; and economical use and care of the property entrusted to them.

"The management has the right to ask the same kindness, courtesy and consideration to the officers and to the public on the part of the employees which the employees have the right to expect from their officers.

"The successful solution of the problems that are before you, if carried to a logical conclusion, means that not only will there never be a strike, but that it will never be necessary to take a strike vote on the Pennsylvania System.

"It should mean the setting up of proper machinery for the prompt consideration of changed working conditions and of grievances, and, finally, that failing to agree between yourselves on a settlement of any of these questions, there shall have been provided beforehand the machinery of a tribunal to which the question can be submitted for final decision."

Freight Traffic Still Declines

WASHINGTON, D. C.

FREIGHT CAR LOADING for the week ending December 11, as reported to the Car Service Division of the American Railway Association, shows a further decrease as compared with the preceding week of over 37,000 cars, although still greater than for the corresponding weeks of the last two years. The total number of revenue cars loaded for the week was 834,897 as compared with 761,957 in 1919 and 820,202 in 1918. There were decreases as compared with 1919 in the Pocahontas and Northwestern districts but increases in the others. The total increase over last year is due to the coal loading as compared with that during the strike period of last year. All classes of commodities shown in the accompanying report showed a decreased loading as compared with the week before, except coal and livestock.

According to the semi-monthly report of locomotive equipment condition compiled by the Car Service Division of the American Railway Association for the second half of November, there were 3,953 locomotives held out of service for repairs requiring less than 24 hours, or 6.2 per cent of the total, and 10,957, or 17.2 per cent of the total, for repairs requiring over 24 hours.

Adler's Visual Highway Crossing Signa

AT BUENA VISTA, VA., the Norfolk & Western has installed a highway crossing signal which gives the stop indication to travelers on the highway by disks, lettered with the word STOP, and by a light, no audible apparatus being used. This signal was devised by Charles Adler, Jr., of Baltimore, Md., whose highway crossing signals in use on the Maryland & Pennsylvania were briefly described in the *Railway Age* of August 6, page 222.

The signal on the Norfolk & Western is shown in the illustration. The vertical shaft supporting the disks turns on its axis and when the crossing is clear the disks are held with their edges to the highway, this position of the shaft being maintained by an energized solenoid. The signal is controlled in the usual manner, and the relay in the box at the foot of the post, when actuated by an approaching train, de-energizes the solenoid and the shaft is revolved a quarter turn by gravity. The disks then face the highway. The lamp (electric) controlled by the same relay is contained in the tube suspended between the two disks. The lamp is in service both night and day, the same as the disk.

This signal is made by the Safety Signal Appliance Corporation, 929 Chestnut street, Philadelphia, Pa.

THE RAILWAY MAIL SERVICE may have been operated with increased efficiency, as the postmaster general says, as compared with the previous year, for there were some important extensions of service; though one fears that these were, in part, counterbalanced by curtailments of service elsewhere. But the Railway Mail Service will not be as efficient as the country has a right to demand until enough space is used to permit the distribution of important first-class mail on all trains where such distribution will expedite delivery. The foreign mail service will not be satisfactory until the sea post-offices are restored.—*Springfield (Mass.) Republican.*

REVENUE FREIGHT LOADED AND RECEIVED FROM CONNECTIONS

SUMMARY—ALL DISTRICTS: COMPARISON OF TOTALS: THIS YEAR, LAST YEAR, TWO YEARS AGO, FOR WEEK ENDED SATURDAY, DECEMBER 11, 1920

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L. C. L.	Miscellaneous	Total revenue freight loaded: This year, 1920	Total revenue freight loaded: Corresponding year, 1919	Total revenue freight loaded: Corresponding year, 1918	Received from connections: This year, 1920	Received from connections: Corresponding year, 1919	Received from connections: Corresponding year, 1918
Eastern	1920	6,212	4,121	59,577	2,425	6,308	4,779	45,821	72,738	201,981	.....	.....	242,909	.....	.....
	1919	6,369	4,282	34,368	3,973	7,643	2,450	34,503	100,025	.....	193,613	200,184	.....	232,603	235,264
Allegheny	1920	3,273	3,618	68,620	7,337	3,657	4,687	36,527	57,950	185,659	.....	.....	131,661	.....	.....
	1919	3,268	3,937	37,108	3,242	4,329	2,628	39,671	69,154	.....	163,338	187,802	.....	117,797	173,200
Pocahontas	1920	123	130	22,832	471	1,771	129	2,626	6,068	34,150	.....	.....	16,212	.....	.....
	1919	181	205	23,790	312	1,951	318	182	9,042	.....	35,981	34,724	.....	18,435	20,610
Southern	1920	2,967	2,263	34,471	1,128	16,539	2,203	36,463	33,285	129,319	.....	.....	70,280	.....	.....
	1919	2,752	2,690	14,075	272	17,323	2,417	19,905	54,329	.....	113,763	116,506	.....	73,658	71,716
Northwestern	1920	11,271	9,039	9,645	1,374	12,324	1,697	26,171	25,884	97,405	.....	.....	48,067	.....	.....
	1919	11,164	10,155	12,870	383	13,612	1,681	19,319	33,449	.....	102,613	116,887	.....	50,027	76,699
Central Western	1920	9,552	10,549	28,014	510	3,493	2,363	28,831	36,349	119,661	.....	.....	56,458	.....	.....
	1919	10,090	11,971	7,116	458	3,630	2,728	21,381	40,751	.....	98,115	108,430	.....	56,770	60,500
Southwestern	1920	3,422	2,079	7,257	659	7,102	1,815	16,704	27,694	66,712	.....	.....	48,591	.....	.....
	1919	3,315	2,948	2,088	639	5,944	1,477	14,661	23,445	.....	54,517	55,669	.....	47,495	45,660
Total all roads	1920	36,820	31,799	230,396	13,904	51,194	17,673	193,143	259,968	834,897	.....	.....	614,178	.....	.....
	1919	37,129	36,188	131,416	9,279	54,431	13,679	149,622	330,195	.....	761,940	.....	.....	596,785	.....
	1918	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	820,202	.....	.....	683,649
Increase compared	1919	.....	.....	98,950	4,625	.....	3,994	43,521	.....	72,957	.....	.....	17,393	.....	.....
Decrease compared	1919	309	4,389	.....	.....	3,238	.....	.....	70,227	.....	.....	.....	.....	.....	.....
Increase compared	1918	.....	.....	.....	.....	.....	.....	.....	.....	14,695	.....	.....	.....	.....	.....
Decrease compared	1918	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	69,471	.....	.....
December 4	1920	37,109	30,903	230,228	15,643	53,971	27,195	195,577	281,542	872,162	.....	.....	.....	.....	.....
November 27	1920	33,922	29,844	205,985	14,338	50,154	31,445	172,958	258,027	797,673	.....	.....	.....	.....	.....
November 20	1920	36,442	40,427	216,322	13,259	54,760	37,009	199,923	282,387	880,528	.....	.....	.....	.....	.....
November 13	1920	34,287	39,023	228,035	13,894	57,529	49,361	196,819	300,961	919,909	.....	.....	.....	.....	.....

L. C. L. merchandise loading figures for 1920 and 1919 are not comparable as some roads are not able to separate their L. C. L. freight and miscellaneous of 1919. Add merchandise and miscellaneous columns to get a fair comparison.

General News Department

Train-robbers, early on the morning of December 3, entered a mail car on a passenger train of the Chicago, Milwaukee & St. Paul as it was approaching Minneapolis, Minn., bound three mail clerks and escaped with about $10,000 in negotiable papers.

The Interstate Commerce Commission has asked Congress, through the Secretary of the Treasury, for a supplemental appropriation of $1,540,000, to cover a deficiency for the fiscal year ending June 30, 1921, as the result of additional duties placed upon the commission by the transportation act. The estimate includes $1,000,000 additional for valuation work, $40,000 for safety work, and $500,000 for general expenses.

The Southern Railway, in the reconstruction and double-tracking of its line between Washington and Atlanta, shortened it 11 miles (648 to 637), and beginning January 1, 1921, fares will be reduced accordingly. Between Charlotte and Atlanta, the old distance was 267 miles, new distance, 260 miles, reduction 7 miles. The present fare between Washington and Atlanta, $23.36, will be cut to $22.97, a reduction of thirty-nine cents.

The New York Central has inaugurated a system of engineering bulletins which will be issued from time to time and distributed to the engineering employees desiring them. These bulletins will be divided and issued under about 18 general heads, covering such subjects as roadway, masonry, track work, engine terminals, etc. Each main head will be sub-divided and the different subjects under the sub-division treated in separate bulletins.

Representative Bland, of Indiana, has introduced in the House a bill to require railroads to maintain at all places where 20 or more employees are customarily employed, or customarily begin or end their day's work, such washrooms as may be required for their health or safety, including, when required, facilities for changing clothes. The Interstate Commerce Commission would also be authorized by this bill to order carriers to provide washrooms.

Samuel W. Dudley, chief engineer of the Westinghouse Air Brake Company, has been chosen Professor of Mechanical Engineering, on the Strathcona Foundation by the Yale Corporation, it was announced Tuesday. Professor C. J. Tilden, of the Department of Engineering Mechanics, the announcement also says, has accepted the directorship of a national movement which has for its immediate object a broad educational program along highway engineering and highway transportation lines, the details of which are yet to be announced.

Henry E. Huntington, chairman of the Board of Directors of the Chesapeake & Ohio, has received from New York University the honorary degree of Doctor of Laws. Mr. Huntington is noted as a collector of English and American literature, and he has amassed one of the finest collections of literary masterpieces in the world. It includes the original manuscript of Benjamin Franklin's autobiography, Washington manuscripts, Lincoln letters and original manuscripts of many other authors and statesmen. Some of these books and papers are housed in his residence at 57th street and Fifth avenue, New York city, and others at his winter home at San Gabriel, California.

The railroads in California have been asked by the State Department of Agriculture for assistance in protecting California crops from four very dangerous pests: the alfalfa weevil, the cotton boll weevil, the gypsy and the brown tail moth, and the citrus canker. The first of these, the alfalfa weevil, is already west of the Rockies, while the others, though a constant menace, have been kept out of the state only through constant vigilance of the authorities in testing seed after it has been shipped into California and before it has been distributed. Station agents are being asked to assist in the enforcement of plant quarantine laws, and thus safeguard the crops which now represent a daily movement by freight or express of 1,000 carloads.

The pension list of the Philadelphia & Reading, established in 1902, now contains 485 names, of whom four have records of 57 years or more of service, and 72 others served 50 years or more. In the last issue of the "Roll of Honor," A. T. Dice, president of the road, expressed the management's appreciation of the long and faithful service these men had rendered. He said: "The prosperity which our company has enjoyed is due in no small part to your faithful service. Accordingly, it is just and right that you should share in that prosperity. You are entitled, also, in your retirement, to the satisfaction of knowing that by your work you have largely contributed to the upbuilding of the strong and important system of railroads we are now operating. The troublous times through which our country has passed since the beginning of the great war make clearer than ever before the value of efficient railroad service, and the vital interdependence of the country and the railroads."

The net railway operating income for October of 203 railroads, as tabulated by the Association of Railway Executives, amounted to $91,761,090, which is approximately $20,674,000, or 18.4 per cent below the net return expected to be earned for that month. The compilation is based on reports received by the Interstate Commerce Commission from railroads with a total mileage of 235,837 miles. On the basis of these figures the railroads of the country would earn annually 4.9 per cent on the value of their properties as tentatively fixed for rate making purposes (at $18,900,000,000), by the Interstate Commerce Commission. This is an increase of three-fourths of one per cent over that for September as computed from the net operating income for that month. To realize a return of 6 per cent on their valuation as provided by the act, the railroads should have earned $112,435,000 in October. Gross operating revenues for the 203 railroads totaled $642,341,119, or an increase of 26 per cent over October, 1919, while operating expenses were $522,877,298, or an increase of 28.8 per cent. The net operating income is an increase of 20.2 per cent. The net operating income in every district fell below a 6 per cent basis.

Transportation of Dangerous Articles

The lower house of Congress, on December 20, passed the bill, H. R., 12,161, recommended by the Interstate Commerce Commission, which amends the legislation authorizing the commission to regulate the transportation of explosives to cover the transportation of dangerous articles other than explosives which have recently become an important item in transportation. The bill also includes amendments to cover certain explosives not now definitely named in the act and extends its provisions to water lines engaged in interstate commerce. It gives the Interstate Commerce Commission the right to utilize the services of the Bureau of Explosives and to avail itself of the advice and assistance any department, commission or board of the government.

Letter Ballot on Replacing Car Ends

The Mechanical Division of the American Railway Association has issued Circular No. 3, announcing a special letter ballot on the proposition submitted in the report of the Committee on Car Construction, requiring that when the ends of cars are broken out, they should be replaced with ends specified for new cars.

This proposal failed to receive a sufficient number of votes for adoption when the regular letter ballot was submitted following the annual meeting at Atlantic City, N. J., last June, but as the vote indicated that the failure of adoption grew out of a misunderstanding of the meaning of the recommendation, the General Committee has ordered the proposed rule to be stated on the special letter ballot as follows: "On house cars (other than refrigerator cars) with steel underframe or steel center sills, having a center sill area of not less than 24 sq. in., when an end requires repairs consisting of new poles and braces, the ends shall be replaced with ends specified for new cars, this to be done under the direction of the car owners." The ballot closes at noon, December 18, 1920.

Subjects for 1921 Convention— Traveling Engineers' Association

The list of subjects of committee reports to be presented at the 1921 annual meeting of the Traveling Engineers' Association, which has recently been issued, includes the following topics:

The Best Method of Operating Stoker Fired Locomotives to Obtain the Greatest Efficiency at the Least Expense; Joseph Kelley (L. V.), Chairman.

A Comprehensive Standard Method of Employing, Educating and Examining Engineers and Firemen; J. B. Hurley (Wabash), Chairman.

What Are the Advantages of the Self-Adjusting Wedges, the Feed Water Heater and Devices for Increasing the Tractive Power of the Locomotive in Starting and at Slow Speed; T. F. Howley (Erie), Chairman.

Subjects for Discussion: J. H. DeSalis (N. Y. C.), Chairman.

Distribution of Power and Its Effect on Operating Costs; Robert Collett (N. Y. C.), Chairman.

Recommended Practice for Conservation of Locomotive Appurtenances and Supplies; J. P. Russell (Southern), Chairman.

Arguments on Railroad Guaranty

Oral arguments were presented before Chief Justice McCoy, of the Supreme Court of the District of Columbia, on December 16 and 17, on the petition of the Grand Trunk Western for a mandamus to require the Secretary of the Treasury to honor a certificate of the Interstate Commerce Commission for $500,000 on account of this road's guaranty for the six months from March 1 to August 31. J. H. Covington, appearing for the railroad, contended that if the Secretary of the Treasury can find refuge in the decision of the comptroller of the Treasury, who has held that the Treasury cannot honor certificates for anything less than the finally determined amount of the guaranty, he can defy Congress and the courts together. No decision by the comptroller, he argued, could turn a merely ministerial duty of the Secretary of the Treasury into one for the exercise of his discretion; and the law providing for payments to the railroad companies on certificates of the Interstate Commerce Commission gives the discretion to the commission and makes the signing of a warrant on such certificate a purely ministerial function of the secretary. Assistant United States Attorney Mason represented the Treasury Department and contended that the decision of the comptroller is binding on the Secretary of the Treasury and that the law provides for only one warrant after a final audit of the guaranty.

International Railway Association

Railroads contemplating taking membership in the International Railway Association can secure a statement giving conditions of membership and other information about the association by applying to the Association of Railway Executives, 61 Broadway, New York City. The International was revived last year and the American Railway Association has renewed its membership therein. Railroad companies which join pay $20 a year, plus an assessment proportionate to the length of their lines. The reorganization of the association was noticed in the *Railway Age* of September 26, 1919, and the program for the next session, which is appointed to be held at Rome, Italy, in April, 1922, was given in the issue of June 18, 1920.

The affairs of the association are managed by a Permanent Commission, with headquarters at Brussels. The American Section of the Permanent Commission consists of the following eight railroad officers: R. H. Aishton, Fairfax Harrison (Southern); W. W. Atterbury (Penn.); Stuyvesant Fish, Hale Holden (C., B. & Q.); J. H. Hustis (B. & M.); H. G. Kelley (G. T.), and L. F. Loree (D. & H.). The chairman of the American Section is R. H. Aishton, and the secretary is J. E. Fairbanks, 75 Church street, New York City.

The Bulletin of the Association, published monthly, is furnished to members without charge; others may secure it for nine dollars a year, payable in advance, by sending to the printer, M. Weissenbruch Co., 49 rue du Poincon, Brussels, Belgium.

Bill to Postpone Clayton Law Passed

The Senate, on December 16, and the House, on December 18, passed the bill to change the effective date of Section 10 of the Clayton law from January 1, 1921, to January 1, 1922, in order to allow further time for the consideration of a more workable substitute for Section 10. Chairman Esch, of the House committee on interstate and foreign commerce, submitted a report recommending the extension, in which he said:

"The transportation act of 1920 was approved February 28, 1920, of this year. Shortly thereafter a bill amending section 10 of the Clayton Act was introduced in the Senate and was referred by the appropriate committee of that body to the Interstate Commerce Commission for a report. Owing to the pressure of business before the commission, caused by the enactment of the transportation act of 1920, the forwarding of a report was overlooked and it was impossible for the Senate committee to take action prior to the expiration of the second session of this Congress, June 5. It was impossible for either Senate or House committee having the legislation in charge to secure action on an amendment of section 10 of the Clayton Act prior to January 1, 1921, when the year's extension granted in section 501 of the transportation act expired. In view of the necessity of some material amendment of section 10 of the Clayton Act, your committee deems it necessary to ask for a further extension by the passage of the pending bill. The committee is of the opinion as a result of the hearings held that the carrying into effect of the existing provisions of section 10 of the Clayton Act will result in needless expenditures on the part of carriers in many instances; that some of its provisions are unworkable, and that the changed status of the carriers and the enactment of the transportation act require a revision of section 10 in order to make it consistent with provisions of the transportation act."

The committee received a letter from Commissioner Hall, of the Interstate Commerce Commission, stating on behalf of the legislative committee of the commission that in the light of the difficulties encountered in the application of Section 10 and of the understanding that because of changed conditions, counsel for the carriers are considering proposals for other legislation in this regard which would seem better adapted to present needs, the committee has no objection to offer to the proposed extension of time.

President W. H. Johnston of the International Association of Machinists has formally requested President Wilson to veto an amendment to the transportation act to defer until 1922 the effective Section 10 of the Clayton anti-trust act.

"This amendment simply legalizes a great steal from the American public," said Mr. Johnston, in a statement to the press. "In filing this protest it is our purpose to afford the President an opportunity to exercise his constitutional right to protect the people against the disastrous effects of a measure which has been slipped through both Houses without debate and without the members having had a chance to ascertain what was back of the legislation. Section 10 of the Clayton Act," said Mr. Johnston, "is one of the most important pieces of protective legislation ever adopted by the representatives of the American people. It has been the established custom for railroad officials and directors to be heavily interested in concerns from which railroads buy their supplies and equipment. Through private deals by these boards of directors and officials, free from the public scrutiny, prices were paid which netted millions of dollars in profits to these railroad interests. By Section 10 of the Clayton act Congress in 1914 intended to forbid these acts of piracy."

"Recent deals," he claimed, "between railroads and equipment concerns with which they are allied have come to light. These have involved unwarranted charges for the repair of locomotives and cars which will mount up into tens of millions of dollars. This money has been extracted from the public. Evidence as to these contracts through which enormous profits have been realized is at present in the possession of the Interstate Commerce Commission. This shows that work has been charged for at rates two, three and four times legitimate costs, as shown by the actual cost of similar work in railroad shops."

Anti-Strike Bill Passed by Senate

The Senate on December 16 passed without discussion the drastic anti-strike bill introduced at the last session of Congress by Senator Poindexter. The bill was passed when very few Senators were in the chamber and without any discussion. Senator La Follette, on entering the Senate chamber shortly afterward, entered a motion to reconsider the vote by which the bill was passed.

The bill prohibits attempts to persuade railway employees to quit their employment with intent to obstruct, delay, hinder or prevent the movement of commodities in interstate or foreign commerce, the use of violence or threats to seek to prevent any person from engaging in employment or continuing in employment in connection with any means or agency of interstate or foreign commerce; also any destruction of property with intent to obstruct, delay, hinder, impede or prevent the movement of commodities in interstate or foreign commerce. The bill also makes it unlawful for two or more persons, officers, agents or employees of carriers to enter into any combination or agreement with intent substantially to hinder, restrain or prevent the operation of trains, and provides that nothing in the act shall be taken to deny to any individual the right to quit his employment for any reason whatever.

A number of members of the House and the Senate, who are described in a statement by William H. Johnston, president of the International Association of Machinists, as "liberal" members of Congress, met on December 17 at Washington, with the heads of the railroad labor organizations and the leaders of "the other progressive organizations," to discuss the general legislative situation. According to Mr. Johnston's statement, the conference grew out of the fact that the leaders of the railroad labor organizations were meeting at this time in Washington to discuss various problems and the time was thought to be opportune for general discussion of the entire legislative situation. Mr. Johnston said that suggestions were made that a bureau of legislative information should be established to act with the liberal members of Congress and that this suggestion was emphasized by the passage of the Poindexter anti-strike bill because opponents of the measure had not been properly warned that it was to be taken up by the Senate. It was agreed that later meetings would be held, at which plans "for bringing about a better co-ordination of the liberal forces of the country with their representatives in the House and Senate" would be formulated.

Store Door Delivery to Relieve Congestion

The question of store door delivery as a means to decrease the congestion in railroad terminals was the feature of a recent meeting of the Transportation Committees of the Federal Highway Council held at the Commodore Hotel, New York, on December 10, 1920. In regard to the relation of highways to railroads and waterways, A. E. Beck, traffic manager of the Merchants' and Manufacturers' Association of Baltimore, Md., presented a paper on the merits and history of store door delivery as applied to the cities of Baltimore and Washington, submitting also an outline for discussion. B. F. Fitch, president, Motor Terminal Company, Cleveland, Ohio, described the use of motor trucks in terminal work illustrating his remarks by lantern slides of the Cincinnati, Ohio, installation. The questions of the development of rural express service and of transportation surveys, traffic control and snow removal and many other subjects were also fully discussed.

Mr. Beck in his paper sketched the history of store door delivery at Washington and Baltimore and essayed to show how well the plan was liked by shippers. He touched upon the decisions of the Interstate Commerce Commission in connection with the store door delivery in these two cities and showed how as a result of the Commission's decision the carriers felt it necessary to abandon the service. He expressed the opinion, however, that store door delivery had justified itself particularly from the standpoint that it overcame the handicap of inadequate terminals and prevented congestion and accumulation. He also discussed the plan proposed for store door delivery at New York. "I think we agree," he said in reference to store door delivery in general, "that store door delivery is the proper method to employ for the more intensive use of existing facilities."

Mr. Beck then took up the question in more detail and treated the subject under the following heads: Should store door delivery be a carrier service? The form of drayage service to be employed; the extent of delivery; the transfer or drayage charges; should zones or drayage charges be published as a part of the carrier's tariff; collection and delivery, objections by consignee.

In conclusion, he said: "Manifestly, there will be a number of difficulties attendant upon the establishment of store door delivery in any community, but I do not feel that any of these difficulties are insurmountable. As soon as the people, generally, realize the tremendous advantages of the store door delivery service, I am confident that they will become as much, or more, enthusiastic as those of us who have studied and understand the relief that this agency may convey to the totally inadequate freight terminals of our railroads of today."

The paper was discussed by the meeting with Col. Charles D. Hine, F. E. Williamson (New York Central), F. S. Holbrook (American Express Company), and J. C. Lincoln (Merchants' Association of New York), leading the formal discussion.

Freight Operating Statistics

The Interstate Commerce Commission has issued an analysis by its Bureau of Statistics of the principal items in the summary of operating statistics of the Class I roads for the month of September, 1920, and for the nine months ended with September, compared with the corresponding periods of 1919.

"It is noted," the statement says, "that the roads during the month of September, 1920, produced in exclusive freight service 40,651,000,000 net ton-miles. This performance exceeds that of September, 1919, by 1,973,000,000 net ton-miles. The volume of traffic in September, 1920, shows a *decrease* of 2,000,000,000 net ton-miles as compared with August of this year, while a comparison of the corresponding months of last year shows an *increase* of 2,262,000,000 net ton-miles. It should be recalled that there was a rush in August to take advantage of the old freight rates. This decline in September of this year and the increase recorded in September of last year result in reducing the percentage of increase in September, 1920, over same month of 1919 to 5.1 per cent, as against a 17.1 per cent increase shown for August.

"The tables indicate that while the volume of traffic increased 5.1 per cent, the freight train-miles increased 6.7 per cent. The loaded car-miles show an actual decrease of 0.7 per cent, the increase in train-miles being in part explained by an increase of 13 per cent in empty car-miles. Because of the increase in empty car-miles, the average train-load shows a decrease of 1.4 per cent, while the car-load increased 6 per cent. As indicated, the per cent loaded of total car-miles shows a decrease of 4 per cent, and the car-miles per car-day increased 6.4 per cent. The net ton-miles per car-day shows an increase of 7.8 per cent. The cost per freight-train-mile of locomotive repairs, enginemen, trainmen, fuel, enginehouse expense and other locomotive and train supplies, shows for the total an increase of 31.3 per cent.

"During the nine months now reported, there were produced by Class I roads in exclusive freight service, 330,964,000,000 net ton-miles, being an increase of 44,062,000,000 net ton-miles or 15.4 per cent over the same period of 1919; and over the same period of 1918 the increase is 6,645,000,000 net ton-miles, or 2 per cent. Train-miles increased 14.3 per cent over September of last year and the loaded car-miles increased 12.6 per cent. The train-load increased 1 per cent and the car-load increased 2.5 per cent. The per cent loaded of total car-miles increased 2.4 per cent. Car-miles per car-day increased 8.1 per cent and the net ton-miles per car-day, the resultant of car-load, per cent of loads and car-miles per car-day and which is the ultimate measure of freight car utilization, although not necessarily of efficiency, shows an increase of 13.3 per cent. The cost per freight train-mile, selected expense accounts, referred to in the comparisons for the month shows for the period an increase of 21.6 per cent over the corresponding period of 1919."

Civil Service Examinations for Attorney Examiner of Finance, Interstate Commerce Commission

The United States Civil Service Commission has announced open competitive examinations for vacancies in the Bureau of Finance, Interstate Commerce Commission, as attorney examiner of finance, with salaries ranging from $3,600 to $5,000, and assistant attorney examiner of finance at salaries ranging from $2,400 to $3,480. Appointees will be employed by the commission in the administration of the provisions of the transportation act relating to finance and other provisions of law delegating to the commission powers and duties in connection with the construction, operation or abandonment of railroads, the acquirement by one carrier of the control of another carrier, the consolidation of carriers, the issue of securities or assumption of obligations by carriers, the determination, certification or payment of deficits, guaranties or loans to carriers, the recapture of excess earnings, the management of contingent or revolving funds or other financial activities.

The duties of these positions will involve the analysis of applications under the provisions of law indicated above, the preparation of information supplemental to that contained in the application, where such additional information may be required, conducting formal hearings upon applications, examination of witnesses, conducting investigations initiated by the commission, writing reports, drawing orders, and other work of a similar nature.

Competitors will be examined in the following subjects, which will have the relative weights indicated:

Subjects.	Weights.
1. General and interstate commerce law	40
2. Common carrier accounting and finance	20
3. Education (a) general, 8; (b) legal, 8; (c) accounting, finance, or engineering, 4	20
4. Experience (a) law, 14; (b) common carrier accounting and finance, 6	20
Total	100

The ratings on the subjects of education and experience will be based upon the competitors' sworn statements in their applications and upon corroborative evidence.

For eligibility for either of these examinations applicants must show educational qualifications fully equivalent to a four years' high-school course, must have been admitted to the bar, and must show that they have been engaged actively in the practice of law, general or special, for a period of at least two years subsequent to their admission to the bar.

In addition to the above, applicants for the position of attorney examiner of finance must meet the requirements specified in one of the following groups:

(a) Two years' educational training in engineering or accounting and the theory of finance, and three years' experience in positions requiring a knowledge of railway accounting and finance.

(b) At least three years' experience as a member of a state public service commission having jurisdiction of the issue of railway securities, or as an employee in a responsible position with such commission, or with the Interstate Commerce Commission.

(c) Graduation from a recognized law school, and at least two years' experience with railroads, financial institutions, or law firms having practice in corporation matters, or in legal or accounting positions involving substantially similar duties, or in independent practice requiring similar qualifications.

(d) A combination of parts of the training and experience indicated in (a), (b), and (c) equivalent at least to any one of them.

Additional credit will be given for legal work involving the formalities and validity of corporate bonds, mortgages, and other securities. Such legal work will also be credited as accounting and financial experience.

"Applicants for attorney examiner of finance who do not meet the additional requirements prescribed for this position, but who meet the requirements for the position of assistant attorney examiner of finance, will be considered for the latter position, unless the applicant states that such consideration is not desired."

Traffic News

The railroads operating suburban passenger service out of Chicago telegraphed the Interstate Commerce Commission on December 11 for permission to increase all suburban fares 20 per cent.

The Traffic Club of Waco, Tex., has elected the following officers: President, C. H. Carringer; first vice-president, B. R. Long; second vice-president, W. N. Miner; secretary and treasurer, Lloyd Bailey.

The Traffic Club of Kansas City, Mo., was reorganized at a meeting on December 9. The new officers are Frank M. Cole, of the W. P. Tanner, Gross & Co., president; J. D. Yates, assistant general freight agent of the Missouri Pacific, first vice-president; C. D. Dooley, traffic manager of Peet Brothers Manufacturing Company, second vice-president; and Fred B. Blair, traffic manager of the Hoyland Milling Company, secretary and treasurer.

The Traffic Club of Lansing, Mich., has elected Karl P. Hodges, traffic manager of the Duplex Truck Company, president; John Thomson, agent on the New York Central, vice-president; John T. Ross, traffic commissioner of the Lansing Chamber of Commerce, secretary and treasurer. These officers, together with E. L. Jennings, agent of the Michigan Central; Marshall S. Graham, traffic manager of the Reo Motor Car Company; W. G. Davis, traffic manager of the Auto Body Company, and W. K. Andrews, agent of the Pere Marquette, will make up the executive committee.

The subject of the "Get Together Traffic Discussion" of the Traffic Club of Chicago on December 22, was "Demurrage, Theory and Practice." Leaders of the discussion for the railroads were: C. W. Crawford, chairman of the general committee of the Division of Transportation of the American Railway Association, and J. R. Pickering, superintendent of transportation of the Chicago, Rock Island & Pacific; for the shippers, R. O'Hara, assistant traffic manager of Swift & Co.; Walter Williams, traffic manager of the Chicago Mill & Lumber Company, and W. W. Manker, assistant traffic manager of Armour & Co.

Carl Howe, traffic manager of the Michigan Central, has been appointed national councillor of the Traffic Club of Chicago to represent it in the Chamber of Commerce of the United States. The National Council of the Chamber of Commerce of the United States consists of one representative each from the more than 1,400 commercial and industrial organizations making up the Chamber's membership. It serves as an advisory body to the National Chamber's Board of Directors. The council holds a special meeting preceding the annual convention of the National Chamber to pass on the program and to select a nominating committee. The councillors also act as chairmen of the delegations representing their organizations. A councillor occupies a position of liaison between the National Chamber and his own organization on important questions.

New York State Passenger Fares

The injunction issued by the New York Supreme Court last month against the advancing of passenger fares was vacated by Justice Hasbrouck, at Kingston on December 19; and on the 20th the New York Central, the Delaware & Hudson and other roads advanced intrastate rates to 3.6 cents a mile. The surcharge on fares in parlor and sleeping cars was also added.

On the 21st the United States District Court, Judge John C. Knox, granted a temporary injunction prohibiting the Public Service Commission, First and Second districts, their counsel, and State Attorney-General Charles D. Newton from interfering in any way with the New York Central Railroad Company in the collection of the passenger rates ordered into effect by the Interstate Commerce Commission. The

order to show cause why the injunction should not be made permanent is returnable December 31. The bill of complaint filed by the railroad recited that the company, which had inaugurated the new fares Monday, was carrying out the orders of the Interstate Commerce Commission, and that there had been interference and threats of interference on the part of the State Attorney-General and the Public Service Commission.

New England Rate Hearing at Washington

Hearings before the Interstate Commerce Commission on the application of the New England roads for larger divisions of the through rates into and out of New England were adjourned on December 18, after four days had been spent in the presentation of the evidence on behalf of the New England lines. The hearing was adjourned to December 28, when evidence will be presented on behalf of the trunk lines. Among the witnesses were Morris McDonald, president, Maine Central; J. H. Hustis, president, Boston & Maine; E. J. Pearson, president, New York, New Haven & Hartford; Howard Elliott, a director of the New Haven; H. L. Brigham, assistant to the president, Boston & Maine; J. E. Slater, assistant to the general manager, New Haven; George S. Hobbs, vice-president, Maine Central; John L. Dempsey, assistant general freight agent, Central Vermont; and Prof. William J. Cunningham, of Harvard University. The evidence consisted largely of statistical exhibits to show that the needs of the New England railroads as terminal carriers have not been adequately recognized in the fixing of divisions, and to show that the New England roads are faced with a very serious condition unless some relief is afforded. Mr. Elliott said that in the next three years the New England carriers have to meet debts amounting to $526,000,000, including a large indebtedness to the United States, and that unless their income is increased most of them would be forced into bankruptcy. Mr. Elliott said that a revision of the divisions would not afford a complete remedy for the situation, but that it would go a long way to relieve the present crisis.

Coal Production

Recovering from the Thanksgiving Day depression, the production of soft coal during the week of December 4 rose to a new maximum for the year. The total output, including lignite and coal coked, is estimated at 12,757,000 net tons. "Not only was this the largest production attained the present season," says the weekly bulletin of the Geological Survey, "but it has been surpassed only four times during the period over which reports of weekly production extend. The record was made possible by the railroads, which furnished empty cars sufficient to load 232,340 cars of soft coal, an achievement the more creditable because on Monday, November 29, the priority in the use of open top cars was withdrawn completely.

Production of bituminous coal during the first 287 working days of the year has been 512,431,000 tons, within 3¼ million tons of the record for 1917, a year when requirements were large and when production about equalled consumption. For the week ending November 27, according to the report, the percentage of full time output lost on account of transportation disability was 17.4. The cumulative lake movement for the season to December 4 was 23,432,000 tons.

For the second time in two weeks production of soft coal set a new maximum for the year during the week of December 11, according to the weekly bulletin of the Geological Survey. The total output for the week is estimated at 12,865,000 net tons, an increase of 33,000 tons over the revised figures for the preceding week. The bulletin says the week was the tenth in a period of sustained heavy production which has been equalled but once before and that in the summer of 1918, when the zone system, car pools and other wartime measures designed to stimulate production, were in force. Cumulative production for the calendar year up to December 11 now stands at 525,403,000 net tons, which slightly exceeds the production for the corresponding period of 1917. If this rate be continued for the 16 working days of the year remaining, the total output for the year will be more than 554,000,000 net tons.

Commission and Court News

Interstate Commerce Commission

The Interstate Commerce Commission has further suspended until January 23, 1921, the proposed rules for the construction of combination rates on petroleum oil and its products published in tariffs filed by western roads.

The Commission has suspended until April 17, freight tariffs between points in defined territories in eastern and southern groups and points in Southwestern territory which propose to increase by 35 per cent the rates to and from the basing points, used in the construction of through rates, in lieu of the interterritorial percentage increase of 33⅓ per cent heretofore established. The suspended tariff also proposes the application of combinations of rates in certain instances where through rates are now applicable.

State Commission to Hold Hearing for Interstate Commerce Commission

The Interstate Commerce Commission has announced a proceeding of investigation and a hearing before the Railroad Commission of California at San Francisco, on December 28, on the proposed discontinuance of an arrangement initiated during the period of federal control for the joint use by the Atchison, Topeka & Santa Fe and the Southern Pacific of terminal properties of the latter company, at Oakland, Cal. The commission's notice says that by Section 13 of the interstate commerce act it is authorized to avail itself of the cooperation, service, records and facilities of state authorities in the enforcement of any provision of the act and that the Railroad Commission of California has consented to give its services in the hearing of this matter.

I. C. C. Orders Advance in Intrastate Rates

The Interstate Commerce Commission has rendered its decision in the Arkansas and Minnesota intrastate rate case, in which it finds that the intrastate passenger fares and excess baggage charges required by state authority to be maintained for transportation within the states lower than the corresponding interstate fares and charges authorized by the Interstate Commerce Commission, are unduly preferential and discriminatory against interstate commerce. The railroads of the two states are ordered to increase the state rates by the amounts of the increases allowed for interstate traffic.

Upon petition of the tidewater coal exchanges for a modification of the 96-hour credit rule as applied to demurrage charges on tidewater coal, the Interstate Commerce Commission has rendered a decision holding that the period of 96 hours heretofore fixed for the payment of transportation rates and charges may be computed from the first 4 p. m. after the time when such exchanges present demurrage bills to individual shippers.

State Commissions

The Railroad Commission of California has authorized the South San Francisco Belt Railway to increase its charges for switching to $3.50 for each car. The company, which serves the industries of South San Francisco, has been charging $2.50 for the first car and $1 for each additional car handled.

The report of the Railroad Commission of California which has recently been forwarded to Governor Stephens, says that during the period from July 1, 1919, to June 30, 1920, the Commission received 2,663 informal complaints against all classes of utilities. Of the total number 487 were complaints based on rates, 62 of these being directed against steam railroads, and 16 against electric lines. The remaining complaints all were caused by dissatisfaction with service; 49 registered against steam railroads and 35 against electric lines.

Court News

Liability for Cutting Fire Hose Across Track

The Maryland Court of Appeals holds that a railroad is liable for willfully or negligently running cars over a fire hose on its track, which prevents the extinguishing of a fire.—McAdoo v. Hanway (Md.), 109 Atl. 446.

Fencing at Sidings, Etc., Not Required in Montana

Under the Montana fencing law railroads are not required to fence at spurs, Y tracks, sidings, crossings, and turntables, and are liable for injury to animals at such places only where negligent.—Knop v. Chicago, W. & St. P. (Mont.), 187 Pac. 1020.

Negligence of Automobilist with Defective Brakes

The Wisconsin Supreme Court holds that an automobile driver who approaches a crossing knowing of the defective condition of his brakes without so decreasing his speed as to be able to stop in safety is guilty of negligence and not merely of a slight want of ordinary care.—Puhr v. Chicago & North Western (Wis.), 176 N. W. 767.

Contract for Free Switching Void

The New York Appellate Division holds that a railroad may recover for the transportation of interstate freight from its yards to a shipper's mill yard, notwithstanding a contract that no extra charge should be made therefor in addition to tariff rates to the freight yards; such contract being against the federal prohibition of preferences and rebates.—B. & M. v. Standard Wall Paper Co., 191 App. Div. 307.

United States Supreme Court

Limitation of Liability as to Passengers' Baggage Applies to Transportation From Adjacent Foreign Countries

On March 14, 1917, Mrs. Woodbury took the Galveston, Harrisburg & San Antonio at San Antonio, Texas, for El Paso, Texas, and checked her trunk, which she took with her. It was lost and she sued the company in a state district court for the value of trunk and contents, which the jury found to be $500. Mrs. Woodbury was traveling on a coupon ticket purchased at Timmins, Ontario, from Timmins to El Paso and return, apparently with stop-over privileges. The company contended she was on an interstate journey and that its liability was limited to $100 under the Interstate Commerce Act of 1887 as amended. Mrs. Woodbury claimed her transportation was not subject to the act, as it began in a foreign country. The Supreme Court of the United States holds that the act does apply to the transportation of both passengers and property from an adjacent foreign country, such as Canada. Section one declares that the act applies to a carrier engaged in such transportation to an adjacent foreign country, and such a carrier is ordinarily engaged in transportation from that country to the United States. The test of the application of the act is not the direction of the movement, but the nature of the transportation as determined by the field of the carrier's operation. There is a later clause in section one which deals specifically with the transportation of property to or from foreign countries; but cases arising under that clause are held not applicable here. That clause applies where the foreign country is not adjacent to the United States. The cases which hold that the act does not govern shipments from a foreign country in bond through the United States to another place in a foreign country, whether adjacent or not, are also not in point. Since the transportation here in question was subject to the act, both carrier and passenger were bound by the provisions of the published tariffs. As these limited the recovery for baggage carried to $100, in the absence of a declaration of higher value and the payment of an excess charge, and as no such declaration was made and excess charge paid, that sum only was recoverable. Judgment for the plaintiff was therefore reversed.—Galveston, Harrisburg & San Antonio v. Woodbury. Decided December 13, 1920. Opinion by Mr. Justice Brandeis.

Equipment and Supplies

Locomotives

THE LAKE CHAMPLAIN & MORIAH is inquiring for 1, 2-8-2 type locomotive.

THE MISSISSIPPI CENTRAL is inquiring for some Consolidation type locomotives.

THE GREAT NORTHERN is inquiring for 15 locomotives for passenger service.

THE CENTRAL DOMINCANO has ordered 2 locomotives from the Baldwin Locomotive Works.

THE YUNNAN KOPEI RAILWAY, China, has ordered 4 locomotives from the Baldwin Locomotive Works.

THE CUYAMEL FRUIT COMPANY, New Orleans, La., has ordered 4 locomotives from the Davenport Locomotive Works.

THE SPANISH GOVERNMENT is inquiring through the locomotive builders for a number of locomotives including Consolidation, Mikado and Mountain types.

THE SOUTHERN LOCOMOTIVE & EQUIPMENT COMPANY, 1002 Empire building, Atlanta, Ga., is in the market for an 80- to 90-ton geared locomotive, standard gage, of recent construction and in first-class condition.

THE RIO GRANDE DO SUL STATE RAILWAY (Brazil) has ordered 15 Mikado type locomotives from the American Locomotive Company. These locomotives will have 16 by 22 in. cylinders and a total weight in working order of 110,000 lb. and will be equipped with superheaters. These are in addition to the 5 locomotives ordered from the same company and reported in the *Railway Age* of December 17.

THE MISSOURI PACIFIC, reported in the *Railway Age* of November 12 as being in the market for 15 switching, 5 Mountain type and 5 Pacific type locomotives, has ordered this equipment from the American Locomotive Company. The switching locomotives will have 6 wheels, and cylinders 21 by 28 in., and a total weight in working order of 165,000 lb.; the Mountain type locomotives will have 27 by 30 in. cylinders, and a total weight in working order of 345,000 lb.; the Pacific type locomotives will have 26 by 26 in. cylinders, and a total weight in working order of 265,000 lb. All these locomotives will be equipped with superheaters.

Freight Cars

THE OLIVER IRON MINING COMPANY, Duluth, Minn., is inquiring for 12 flat cars.

THE LOUISVILLE & NASHVILLE will be in the market soon for 2,700 miscellaneous types of freight cars.

Passenger Cars

THE UNION PACIFIC is inquiring for 14 dining cars.

THE LOUISVILLE & NASHVILLE has ordered from the American Car & Foundry Company 15 coaches, 5 coaches with smoking room in the center of the car, 5 coaches with smoking room at end of the car, 8 baggage cars, 3 postal cars and 7 diners.

Iron and Steel

THE PHILADELPHIA & READING has ordered 5,000 tons of 130-lb. steel rails from the Carnegie Steel Company.

Miscellaneous

THE DUTILH-SMITH, MCMILLAN & Co., 50 Broad street, New York, is in the market for a number of locomotive boilers, for use on the South African Railways, and has an inquiry from its London office for 1,000 pairs of Sharon couplers.

Supply Trade News

The Ewald Iron Company, Louisville, Ky., has opened an office in the Aeolian building, 33 West Forty-second street, New York, in charge of **John P. Bourke,** who has been appointed eastern sales manager.

E. W. Englebright, who was engineer for the New York office of the Union Pacific until that office was merged recently with the organization of the assistant to the president at Omaha, Neb., where he has been located since that time, has resigned to become associated with the **Elvin Mechanical Stoker Company,** 50 Church street, New York. Mr. Englebright was born on January 12, 1885, at Oakland, Cal., and attended public schools until 1903. He then entered the employ of the Southern Pacific at Oakland, Cal., in its engineering department and served as rodman, levelman and transitman until 1905, when he entered the University of California, pursuing a course of civil engineering until 1909. He then returned to the Southern Pacific and served as assistant engineer on the Shasta division at Dunsmuir, Cal., until 1910, when he was appointed assistant division engineer. In 1912 he served as roadmaster at Klamath Falls, Ore., remaining there until 1913, when he became assistant to E. E. Adams, then consulting engineer of the Union Pacific System for engineering, motive power and equipment standards, with headquarters at New York. Following the appointment, in 1918, of Mr. Adams as engineer for the Division of Capital Expenditures, at Washington, Mr. Englebright was appointed acting consulting engineer for the Union Pacific System corporations, with the added duties of purchasing the large number of locomotives and cars, orders for which were placed by the Union Pacific System prior to the termination of federal control. On the return to private control he became engineer for the New York offices of the Union Pacific System.

E. W. Englebright

Ralph Lane, manager of the eastern sales of the **Germain Company,** Pittsburgh, Pa., has been placed in charge of all the eastern sales, including the territory from Montreal to Norfolk, for the **Mummert Lumber & Tie Company,** Chicago, Ill.

H. G. Keller, manager of the Philadelphia, Pa., office of the **Independent Pneumatic Tool Company,** Chicago, has been promoted to manager of the New York office and **F. H. Charbono,** manager at St. Louis, Mo., has been promoted to manager of the Philadelphia office to succeed Mr. Keller.

James C. Currie, eastern representative of the **Nathan Manufacturing Company,** New York, was killed in an elevator accident in New York City on December 11. Mr. Currie was born in Scotland 69 years ago and came to the United States when he was 12 years of age. Shortly afterwards he entered the service of the Pennsylvania Railroad as a fireman, and later served as engineman on the Congressional Limited. About 26 years ago he went to the Nathan Manufacturing Company as its eastern representative and was with that firm until his death. Mr. Currie was well known in the railway supply field and was assistant grand chief of the Brotherhood of Locomotive Engineers.

Frank H. Fayant, assistant to the chairman of the Association of Railway Executives, has been appointed vice-president of Thomas F. Logan, Inc., advertising agents for the New York Central, General Electric Company, Consolidated Coal Company, Radio Corporation of America, United Shoe Machinery Company and other corporations. Mr. Fayant directed the public relations work of the railroads, leading up to the enactment of the Transportation Act, 1920. He was at one time London correspondent of the New York Herald, and later a member of the staff of the Wall Street Journal. For some years he acted as advertising and publicity counsel to various banking and industrial interests.

Don L. Clement will again represent **Pratt & Lambert, Inc.,** Buffalo, N. Y., in the railroad field, effective January 1, with headquarters in New York. Mr. Clement represented Pratt & Lambert, Inc., in a like capacity until November, 1917, when he was commissioned in the Engineer Corps of the United States Army, and was immediately assigned to the 35th Engineers, a unit organized for the purpose of erecting railroad cars in France. He was overseas 16 months, and during the greater part of this time was assistant adjutant and adjutant of the 35th Engineers, which eventually became one of the grand divisions of the Transportation Corps. He was discharged in May, 1919, with the rank of captain. Since Mr. Clement's return to civilian life, he has been connected with Pratt & Lambert, Inc., on inside work of a special character.

The **American Vapor Torch Company** was organized at Chicago on December 1, with **V. J. Burry,** president; **W. McK. White,** vice-president, and **D. A. Hultgren,** secretary and treasurer. **V. J. Burry,** the president of the company, upon leaving school in 1903, entered the employ of the Youngstown Engineering Company, Youngstown, Ohio, as a draftsman. In 1904, he entered railway service with the Pittsburgh & Lake Erie, serving this road successively as draftsman, apprentice instructor, and chief draftsman. He was appointed mechanical engineer of the Joliet Railway Supply Company, Chicago, on January 1, 1917, and was later promoted to engineer and works manager. On April 1, 1920, he organized the Burry Railway Supply Company, Chicago, and is also president of that organization at the present time. **W. McK. White,** vice-president of the company, is president of the White Manufacturing Company, Goshen, Ind., and was formerly with Holden & White, Chicago. **D. A. Hultgren** was formerly chief engineer of the C. F. Massey Company, Chicago.

V. J. Burry

Eversley Childs, chairman of the board of the Barrett Company, New York, and **William Hamlin Childs,** president, offered their resignations at a meeting of the directors of the company on December 18. **William N. McIlravy** was elected chairman, **Thomas M. Rainhard,** president, and William Hamlin Childs was elected chairman of the executive committee. The following directors resigned: **Harry W. Croft, J. H. Fulton, William S. Gray, Alexander C. Humphreys, Isaac B. Johnson, Powell Stackhouse, Hamilton Stewart, J. Harry Staats, H. D. Walbridge** and **Horace S. Wilkinson,** and the following directors were elected: **E. L. Pierce,** president, Solvay Process Company; **W. H. Nichols, Jr.,** president, General Chemical Company; **Orlando F. Weber,** president, National Aniline & Chemical Company; **Walter B. Harris,** sales manager of the Barrett Company; **M. H. Phillips,** New York manager of the Barrett Company; **D. W. Jayne,** man-

ager chemical department of the Barrett Company; **Clark McKercher,** general counsel of the Barrett Company and **E. J. Steer,** secretary and treasurer of the Barrett Company.

The American Malleable Castings Association inaugurated a research program in 1915 to improve the works practice of the member companies and insure a uniform high-grade product. The improvement in the properties of mealleable iron, which has been brought about as a direct result of this policy, is set forth in a statement recently authorized by the association. Records of tests made in 1911 showed the average ultimate strength of malleable iron as manufactured to be about 39,000 lb., and the elongation under 5 per cent. A report made in September, 1920, showed an average ultimate strength of over 53,000 lb., and an average elongation of over 14 per cent. The report also showed that the result of this co-operative research work was not only to increase ultimate strength and elongation, but to increase the uniformity of the product.

Richard G. Harris has been appointed Pacific Coast manager with headquarters at San Francisco, Cal., of the **Standard Underground Cable Company,** Pittsburgh, Pa., succeeding **John P. Bell,** who will hereafter devote his time to his export and import business. Mr. Harris has been connected with the Standard organization since 1909, when he was a member of the staff of the general offices of the company at Pittsburgh, and was engaged on special development matters at its Perth Amboy, N. J., factories, and later sales engineer with the New York office. For the past eight years he has been manager of the Montreal office territory of the Standard Underground Cable Company of Canada, Ltd. **Vinton Smith,** who has been connected for several years with the San Francisco office staff, has been appointed assistant Pacific Coast manager, and **W. G. Stearns,** also many years with the company on the Pacific Coast, has been appointed special sales agent.

The Engineering Business Exchange, New York, has opened a Pacific Coast branch, with **James T. Whittlesey** as director, and offices in the Claus Spreckels building, San Francisco, Cal. This will make available to the engineers and engineering industries of the Coast states the same service in bringing together the buyers and sellers of engineering and technical business properties that is being rendered by the New York office of the exchange. Mr. Whittlesey is a Yale graduate and served a long time in the street railway field. He did some of the pioneer work in street railway electrification on the Brooklyn street railways. For 12 years he was chief engineer of the Public Service Electric Company of New Jersey, and built a number of that company's large power stations and developed a comprehensive ten-year program for the unification of the various plants and systems in New Jersey. He went to California eight years ago and since that time has been engaged in general consulting practice. He has also been confidential advisor to the Spreckels' interests, investigating and reporting on a variety of industrial and public utility enterprises in various localities.

Steel Prices to Stand

The United States Steel Corporation has decided to adhere to its present prices for rails, angle bars, tie plates, bolts and spikes during 1921. The prices for rails stand at $45 and $47 per ton for Bessemer and open-hearth steel, respectively, with a premium of $1.60 per ton when rolled according to the 1914 A. R. E. A. specifications and of $11.80 per ton when rolled, according to the 1920 A. R. E. A. specifications. These prices will govern on large tonnages which have been placed with the corporation recently for rails in which the price has been left open until this time.

Although the independent steel companies have been quoting prices on rails ten dollars above the United States Steel Corporation, rumors now persist that they will shortly revert to the latter's scale and it is known that one company is already quoting these prices.

Railway Construction

CHICAGO & NORTH WESTERN.—This company is constructing a 40 ft. by 100 ft. brick car repair shed at Erie St. and the North Western tracks, Chicago. The work is being handled by company forces.

CHICAGO, MILWAUKEE & ST. PAUL.—This company contemplates rebuilding its passenger station at Watertown, Wis., to replace a structure recently destroyed by fire.

GEORGIA, SOUTHWESTERN & GULF.—This company has under survey 60 miles of a 155 mile line which it proposes to construct from Albany, Ga., to St. Andrews, Fla.

ILLINOIS CENTRAL.—This company will soon accept bids for the construction of a frame freight and passenger station at Sarpy, La., to cost approximately $20,000, and a frame freight and passenger station at Dowell, Ill., to cost about $8,000.

MICHIGAN CENTRAL.—This company contemplates the construction of a 30 ft. by 128 ft. brick freight station and office at Albion, Mich., replacing a structure destroyed by fire October 13.

MICHIGAN NORTHERN.—The Interstate Commerce Commission has denied the application of this company for a certificate of public convenience and necessity to construct a line of railroad in the counties of Ingham, Eaton, Clinton, Gratiot, Isabella and Midland, Mich., on the ground that public convenience and necessity has not been shown to require the construction of the line. The report says that if the record now before the commission is not as strong as it can be made and the parties interested in the project desire to supplement the existing record, early opportunity to do so will be afforded.

MISSOURI, KANSAS & TEXAS.—This company has awarded a contract to H. D. McCoy, Cleburne, Tex., for the construction of a roundhouse, shop, storehouse, and roundhouse foreman's office at Oklahoma City, Okla. The company contemplates enlarging its roundhouse and car facilities at Osage, Okla.

PEARL RIVER VALLEY.—This company has applied to the Interstate Commerce Commission for a certificate authorizing it to abandon the operation of its line between mile posts 13 and 17 from Nicholson, Miss., and to construct a shorter line.

WISCONSIN & MICHIGAN.—This Interstate Commerce Commission has issued a certificate authorizing this company to rebuild and resume the operation of a line of 7.17 miles between Faithorn Junction, Mich., and Aragon Junction.

Photo from Keystone View Co.

Debris of an Accident on the Nanshin Electric Railway, Japan

Railway Financial News

ALBANY & SUSQUEHANNA.—A special dividend of 2 per cent has been declared on the $3,500,000 capital stock, payable January 8, 1921. The regular semi-annual dividend of 4½ per cent has also been declared, payable January 2, 1921.

ATLANTIC COAST LINE.—This company has filed an application with the Interstate Commerce Commission for authority to assume the obligations imposed by a trust agreement with the Safe Deposit Company of Baltimore as trustee for the purchase of equipment to the amount of $6,220,000, of which it is to pay in cash $1,720,000 and $4,500,000 in equipment trust certificates maturing semi-annually for 15 years at 6½ per cent. The certificates are intended to be sold to J. P. Morgan & Co. at not less than 94.06 per cent of par.

BOSTON & MAINE.—This company has filed an application with the Interstate Commerce Commission for authority to issue $609,000 of 7 per cent bonds dated January 1, 1921, under its mortgage of December 1, 1919, maturing 1931, to be exchanged for maturing bonds of the Boston & Lowell and the Connecticut River.

CENTRAL VERMONT.—The Interstate Commerce Commission has authorized this company to issue not to exceed $1,359,000 of refunding mortgage 5 per cent gold bonds to satisfy an equal amount of indebtedness to the Grand Trunk Railway. The company had asked for authority to issue $15,000,000 of the bonds. In an order of August 25, the commission authorized an issue of $12,000,000 for the purpose of retiring the applicant's 4 per cent first mortgage gold bonds, which matured on May 1. Action on the remaining $3,000,000, which the applicant proposes to use in paying its unsecured indebtedness to the Grand Trunk, was deferred on the ground that sufficient evidence had not been presented to justify it. Additional facts have been submitted in support of the application, which the commission has now granted in part.

CHESAPEAKE & OHIO.—This company has been authorized by the Interstate Commerce Commission to enter into a proposed equipment trust agreement for $4,500,000 for the purchase of cars and locomotives.

CHICAGO & NORTH WESTERN.—This company has applied to the Interstate Commerce Commission for authority to issue and sell $440,000 of 5 per cent bonds under its general gold mortgage of 1987, and $416,000 of 6 per cent bonds, and $1,000,000 of 5 per cent bonds under its first and refunding mortgage of 1920, to reimburse the treasury for money expended in the retirement of certain underlying bonds reserved for in the mortgage and for permanent improvements and additions. The company proposes to invite bids for the bonds at not less than 90.

CHICAGO GREAT WESTERN.—The Interstate Commerce Commission has approved a loan of $1,929,373 to this company to enable it to provide itself with rebuilt freight-train cars and betterments to its roadway and structures.

COLLINS & LUDOWICI.—Pursuant to a court order this road will be sold at foreclosure on January 4, 1921, at Reidsville, Ga.

DENVER & RIO GRANDE.—Confirmation of the sale of this road to the Western Pacific was deferred by Federal Judges Sanborn and Lewis at St. Louis on December 18, pending a decision from the Court of Appeals on the right of the stockholders to intervene in the foreclosure proceedings.

EAGLES MERE.—H. L. Geyelin was appointed temporary receiver for this road on December 22. The company leases its nine and one-half miles of line between Sonestown, Pa., and Eagles Mere Park, to the Williamsport & North Branch Railroad, which is also in the hands of receivers.

FREDERICKSBURG & NORTHERN.—This company has applied to the Interstate Commerce Commission for authority to issue a note for $36,935 to cover money advanced during 1918, 1919 and 1920 by the directors and stockholders now carried in open accounts on the books of the company.

LEHIGH & HUDSON RIVER.—The Interstate Commerce Commission has authorized this company to issue and sell $2,987,000 of additional capital stock at not less than par, the proceeds to be used to retire $2,587,000 of bonds issued under a mortgage of July 1, 1890, and $400,000 of debenture bonds issued under a trust agreement of May 1, 1907.

MICHIGAN CENTRAL.—This company has applied to the Interstate Commerce Commission for authority to guarantee a 6 per cent, 10-year promissory note of the Indiana Harbor Belt for $173,000 to the Secretary of the Treasury.

MINNEAPOLIS & ST. LOUIS.—The Interstate Commerce Commission has authorized this company to issue approximately $182,000 of promissory notes, bearing interest at the rate of 6 per cent and payable to Union Refrigerator Transit Company, in part payment for 100 refrigerator cars to be purchased from that company at a contract price of $227,500.

NEW YORK CENTRAL.—This company has applied to the Interstate Commerce Commission for authority to guarantee a 6 per cent, 10-year promissory note of the Indiana Harbor Belt for $174,000 to the Secretary of the Treasury.

NEW YORK, CHICAGO & ST. LOUIS.—This company has declared a dividend of 5 per cent on the common stock, payable on January 15 to stock of record, January 3. The last dividend was 4 per cent paid on March 1, 1913.

SOUTHERN PACIFIC.—Henry W. de Forest and Paul Shoup, vice-presidents of this road, have been elected, respectively, chairman of the board and president of the new Pacific Oil Company. This is the company which has taken over the California oil properties of the Southern Pacific. Hugh Neill has been elected secretary and treasurer. Mr. de Forest, Charles A. Peabody and Mortimer L. Schiff have been elected directors and members of the executive committee. The other directors are: James S. Alexander, Gordon M. Buck, B. D. Caldwell, Samuel Rea, E. P. Swenson and Paul Shoup.

TENNESSEE, ALABAMA & GEORGIA.—Charles Hicks, general manager of this road, has been appointed receiver. The road operates between Chattanooga, Tenn., and Gadsden, Ala., 96 miles.

TOLEDO TERMINAL RAILROAD.—This company has applied to the Interstate Commerce Commission for authority to issue certificates of indebtedness aggregating $98,685 at 6 per cent, payable on demand, to the various railroads that own its stock for advances they have made from time to time.

TRANS-MISSISSIPPI TERMINAL.—The Interstate Commerce Commission has approved a loan of $1,000,000 to this company to aid it in meeting the maturity of its 6 per cent gold notes, due November 1, 1920, in principal amount of $3,653,000. The applicant itself is required to finance $2,653,000 to meet the loan of the government.

WASHINGTON & LINCOLNTON.—This company has applied to the Interstate Commerce Commission for authority to issue $100,000 of 7 per cent cumulative preferred stock, the proceeds to be used in improving the condition of its roadbed and in the purchase of rolling stock.

WESTERN MARYLAND.—This company has applied to the Interstate Commerce Commission for authority to issue twelve 6 per cent marine equipment gold notes aggregating $225,000, the proceeds to be used for the purchase of a steel car float. Arrangements have already been made for the sale of the notes at par.

IN THE RAILROAD BUSINESS or any other business where different grades and qualities of endeavor are required, and in or out of labor unions, workers have got to be paid on a basis of the natural value of the work performed under conditions which the workers must face or the effort will relax and the worker become demoralized. The labor union system itself will break down.—*N. Y. Herald.*

ANNUAL REPORT

Twenty-Sixth Annual Report of the Southern Railway Company

RICHMOND, VA., OCTOBER 12, 1920.

To the Stockholders of
Southern Railway Company:

The Board of Directors submits the following report of the affairs of the Company for the year ended December 31, 1919:

INCOME ACCOUNT.

The total corporate income for the year was $20,884,019.97, an increase of $51,393.40 over 1918. So much of this figure as represents compensation from the Government is limited to the so-called "standard return" ($18,653,893.15) certified by the Interstate Commerce Commission pursuant to the Federal Control Act. After deducting $15,742,452.69 for interest, rentals and other charges, the balance was $5,141,567.28, out of which the $3,000,000.00 required for the dividend of five per cent. on the preferred stock was appropriated. The final surplus was $2,137,259.65 compared with $2,700,205.38 in the preceding year. This decrease of $562,945.73 in the amount carried to the credit of profit and loss was due to an increase of $626,689.31 in interest paid on unfounded debt represented by interest bearing obligations required of the Company by the Director General of Railroads and War Finance Corporation in return for funds applied toward the payment of fixed charges during the period of Federal operation.

THE LAST YEAR OF GOVERNMENT OPERATION.

The Government operated the property during the entire year 1919 and until March 1, 1920. When the property was turned back to the Company it was found:

ON THE PHYSICAL SIDE:

The standards of maintenance established during the antebellum period had not been kept up during Federal control. In roadway there was conspicuous lack of rail and tie renewals, but when this is said it is fair to add that the roadway of the busy main lines, on which the maintenance effort had been concentrated, remained in good condition. As to equipment, it is even yet impossible to report actual condition, for much of it was scattered and has not yet reached home, but on such evidence as is available it seems clear that the car equipment was seriously under maintained.

ON THE FINANCIAL SIDE:

The property was turned back with an empty treasury, so that the Company was compelled to earn the first pay roll, due four weeks later.

RELATIONS WITH THE FEDERAL RAILROAD ADMINISTRATION.

No contract was effected defining the compensation to be paid by the Government for the use of the Company's property during the period of Federal operation. As stated in the report last year, the Federal Control Act authorized contracts with railway companies for the payment to them by the Government of annual compensation equivalent to the average annual railway operating income for the three years ended June 30, 1917, with the provision that the President of the United States might agree with any company upon a different sum in exceptional cases where the average income for the three years would be plainly inequitable as a fair measure of just compensation. The average annual railway operating income of Southern Railway Company for these years has been certified by the Interstate Commerce Commission, pursuant to the Act of Congress, to be $18,653,893.15. As this sum was not, in the judgment of your Board of Directors, a fair measure of just compensation for the use of your property by the Government, a confident application was made for additional compensation, in the aggregate amounting to $4,771,398.97 per annum. As stated in detail in the last annual report, this application was supported by what seemed to us to be persuasive specifications. After twelve months of waiting for a decision upon this application, we were advised by the Railroad Administration that they were prepared to allow us the following additional compensation:

For the year 1918	$203,165.84
For the year 1919	439,655.24
For the year 1920, or any part thereof, at the annual rate of	521,250.40

No hearing on the application and no explanation of the award were vouchsafed. Under these circumstances it seemed to the Board that the award was inadequate. The Company expects, therefore, to assert its claim for additional compensation in the forum provided by law for the case of failure to agree with the Railroad Administration.

There are, furthermore, many other unsettled questions arising out of Federal control, upon which there is a wide difference of opinion at this time. Thus, the claims of the Company against the Government now formulated total $84,700,000.00, and we are advised of Government claims against the Company totaling $71,650,000.00. This issue also must be tried out.

It is, then, to be anticipated, however unfortunate it may be, that there will be protracted delay in final settlement of the Company's accounts with the Government growing out of Federal control.

THE RESUMPTION OF CORPORATE OPERATION.

By the Act of Congress approved February 28, 1920, known as the Transportation Act of 1920, the Company had the option of operating its property for the six months period from March 1 to August 31, 1920, for account of the Government, receiving one-half of the annual compensation paid during the period of Federal control and surrendering to the Government any income in excess of such amount. The Board of Directors decided to resume the operation of the Company's property for its own account from March 1st. In arriving at this decision the Directors adhered to their conviction that the amount guaranteed by the Government was not a fair measure of compensation for the use of the property; they believed that the revenue resulting from the prosperous business of the South, together with an intelligent control of expenses, might yield as much or more net income, and they were convinced that the advantages to be derived through stimulating with a sense of responsibility the efforts of the working organization toward getting business and handling it efficiently and economically fully justified the assumption of whatever business risks might be involved.

Three of the companies (The Cincinnati, New Orleans and Texas Pacific Railway Company, The Alabama Great Southern Railroad Company and New Orleans and Northeastern Railroad Company) in which Southern Railway Company has substantial investment interests and whose properties are operated as part of the Southern Railway System, made the same decision.

In the event this adventure in self-reliance was justified. The Board believes that the indirect effects of stimulation of the staff are, and will continue to be, of value, but even in the account of immediate income there was success. The results of "railway operating income" for the System were:

Six Months ended August 31, 1920.

	Below Guaranty	*Above Guaranty*
Southern	$712,491.79	
C. N. O. & T. P.		$563,260.17
A. G. S.		533,266.67
N. O. & N. E.		258,043.41
Excess above the guaranty for the System		$642,078.46

If, by reason of the addition to its expenses for four months of the period of approximately $4,195,000.00 in increased wages, under the award of the Railroad Labor Board on July 20, 1920, without a contemporary compensation of increased rates, the Southern proper failed to secure the equivalent of the full guaranty in the period, nevertheless its "railway operating income" was $3,449,734.18 greater than that from the Government operation of the same lines in the corresponding months of 1919, and, moreover, the Southern earned its preferred stock dividend for the period by its own operations. Comparing like with like, the result of operation of the Southern was thus more than $7,500,000.00 better than the Government operation.

THE RATE INCREASE.

The increase of railroad rates authorized by the Interstate Commerce Commission's decision of July 29, 1920, seems to complete the cycle of Government management of the railroad industry. Such an increase was necessary to support the scale of expenses set up by the United States Railroad Administration. It remains, then, for private management to resume the practice of competitive efficiency which distinguished the American railroads during so many years, so to justify the preference, declared by Congress, of the American people for that form of administration, by making possible not only the success of individual companies and the prosperity of their loyal employees, but a constant and progressive reduction of rates accompanied by an enlargement of service to the public, such as may be traced through the old-fashioned railroad statistics. No one can expect this to be accomplished over night, considering the practical conditions, but a start can be made at once. Invoking the cooperation and support of the employees, the management of the Southern Railway System will make the effort.

It is futile to attempt at this time a prediction of future net income under the present scales of rates of wages. Only experience under the new order of things can determine what will be the effect upon the divisible income, but we face the future with courage and with confidence.

IMPROVEMENTS AND BETTERMENTS IN THE CAPITAL ACCOUNT.

No additions and betterments to the fixed plant, of any significance, were undertaken during Federal control. The work of laying a double track on a revised grade between Washington (Alexandria, Va.) and Atlanta was, however, finished. As originally contracted and estimated, this work was to cost $34,838,000.00. It actually has cost $52,134,000.00. Of this, $5,216,586.24, representing the work done during Federal control, was advanced by the Railroad Administration out of its profits from the operation of the property in 1918 and is included in the claim of the Railroad Administration against the Company. The work itself has fully justified the hopes with which it was undertaken, despite the increased cost. Before the Government took possession of the property the double track in operation had materially enlarged the capacity of the plant, and the benefit is now felt more than ever, as is evidenced by the fact that since March 1st the Company has handled a larger traffic than at any other time in its history. Other such profitable projects of heavy reconstruction, which can be equally justified, await the halcyon time when again capital shall be available. In like manner many comparatively minor improvements to the plant, which also promise conspicuous profit, are waiting on the budget.

It has been necessary, for the same reason of lack of working capital, to postpone also customary contributions to many municipal improvements throughout the territory which are expected by local public opinion. The aggregate of these claims now in hand, accumulated during the fallow years of Government control, is over ten million dollars. If this sum was so invested, it would not add a penny to the revenue producing, and little to the expense controlling, power of the plant, but the insistence of local public authorities that it shall be invested represents none the less a burden of citizenship and a current administrative problem of no little concern. At a time when the good will of the public is of prime importance it is thus necessary to postpone things in which the local communities are impatiently interested. It may suffice to point out that the new Transportation Act contemplates that these non-revenue producing improvements shall be undertaken by a railroad out of a fund to be accumulated from the new rates, but this is cold comfort to the interested communities, for it means delay.

Since the close of the year the Company has entered into an equipment trust agreement, dated January 15, 1920, with the Director General of Railroads and Guaranty Trust Company of New York, Trustee, whereby the Company will acquire title to ninety-six locomotives and two thousand coal cars which were purchased by the Government and allotted to and accepted by the Company, and will pay therefor, in fifteen equal annual installments bearing interest at the rate of six per cent, per annum, the price charged by the manufacturers, which price has not yet been definitely ascertained, but will be not less than $10,293,250.00 and not more than $10,977,193.00. The ninety-six locomotives had been ordered by the Company before Federal control became fully effective, were needed, and have been, since they were delivered, an essential element of operating strength. The coal cars were needed also; indeed, on the transportation side the management would welcome a much larger addition to equipment, but the current business situation, meaning the high manufacturing cost, the prohibitive cost

of capital, the unsettled state of accounts with the Government, and the uncertainty of the effect of the new rates, has not yet justified a commitment in that respect.

INDUSTRIAL AND AGRICULTURAL DEVELOPMENT OF THE TERRITORY SERVED.

The South, released from the absorbing activities of war, has turned to the pursuits of peaceful industry. It does so with renewed energy stimulated by greater resources than it ever before enjoyed. The South is now recognized by the business world to be prosperous, measured by every economic test. The long generation of struggle for bare existence has passed. Among the causes for this one of the most potent is that the average standard of living has been raised. In the years following the war between the States the South produced at low costs what it had to sell, and sold it as raw material at low prices, but it bought and consumed the manufactures of the North at the high prices which were maintained by the relatively high wages paid at the North. As a result the South was kept poor. With the development of Southern industry in recent years have come higher prices for Southern products and higher wages for Southern people, thereby increasing the purchasing power of the average Southern family. Not only has property been distributed in a way never before known in the South but the sectional aggregate of prosperity is greater. This, we take it, is the best sense in which the recent war has made "the world safe for democracy" in the United States. The argument that there is inflation and extravagance in the present situation may be justified and will be tested by the event, but the cheerful fact remains that the South is today feeling what Dr. Johnson called "the potentiality of growing rich beyond the dreams of avarice." We append a few specifications, in support of this general statement, from the facts which come to the attention of a railroad management.

The number of new industrial establishments now in course of construction, including additions to enterprises already in operation, is greater than at any time in the history of the South. Five hundred and eight new industries were completed and put in operation along the lines of Southern Railway System and two hundred and ninety-four industries were enlarged during the year 1919 and the first six months of 1920. Capital to the amount of $225,816,000.00 was invested in new industries and in the extension of old enterprises in the territory served by the Southern Railway System during the three years from July 1, 1917, to June 30, 1920, and the estimated cost of plants under construction on the latter date was $153,165,000.00.

It is interesting in connection with these figures to recall that at the time of the establishment of a single important industry on our lines, noted in the annual report for 1907, we expected that the revenue therefrom to the Company would reach $500,000.00 per annum. Our revenue from this plant to-day is at the rate of $1,200,000.00 per annum. The traffic handled for it in 1919 amounted to 630,783 tons, or 24,132 carloads.

There is a marked increase in the variety of manufactures in the South. The movement is toward the complete conversion of raw materials in finished articles. Thus, in 1890 but 528,895 bales of cotton were consumed by Southern mills and this cotton went into the manufacture of yarns and unbleached fabrics which were sent to other manufacturing districts for conversion or for bleaching and finishing processes. In 1919 the Southern mills consumed 3,491,000 bales of cotton. These mills now are finishing and bleaching all goods which they manufacture. They are producing all varieties and grades of cotton cloth, and much of this product is being converted within the South into articles of wearing apparel and other finished articles ready for immediate use. These products now find their way directly from the mill doors to distributing markets throughout the United States and in many foreign countries. The number of new spindles in operation on June 30, 1920, represents an increase of 8.3% over the number in operation at the end of 1918.

Again, the production of pig iron in the South in 1919 was 2,321,000 gross tons, an increase of 86% over the quantity produced in 1890. More than 50% of the 1919 production was converted in the South into a large variety of finished articles, while only 20% of the 1890 production was melted in the South and that chiefly into castings and pipe.

The progress thus noted in the manufacture of finished articles from cotton and iron is fairly representative of the general development of the South's natural resources.

The exportation of manufactured articles and of coal from the South is rapidly increasing. Difficulties of transportation affecting the movement of traffic through congested terminals of the Eastern seaboard have occasioned a larger flow of export traffic through South Atlantic and Gulf ports. Rate adjustments have been established which permit the movement of such traffic in competition with routes through the Eastern seaboard. This traffic has reached a substantial volume and is engaging more vessels than ever before frequented Southern ports. A healthy increase in this traffic is assured. The service is attracting increased imports as well.

The raising of live stock is being conducted on an increasing scale. The number of animals in the Southern States on January 1, 1920, is set forth in the following table, together with the percentages of increase during a period of four years:

Horses	2,018,000	Increase	1.2%
Mules	2,045,000	"	9.8%
Milch Cows	3,507,000	"	13.1%
Other Cattle, for meat	5,668,000	"	17.5%
Hogs	16,784,000	"	22.5%

This increase in the production of live stock has been accompanied by the location of stock yard facilities which are being profitably operated, and by the construction and operation of numerous packing houses, the number of the latter now in operation in the South being twenty-one. These packing houses afford a home market for a large proportion of the stock produced in the South. At the same time live stock traffic has increased, our lines handling 264,466 tons during the year 1919, an increase of 10.7% over the preceding year. With prosperity the Southern people have become larger consumers of beef. "Hog meat and hominy" is no longer the chief of their diet. The economic consequences of this development are likely to be important.

Municipal improvements, including the improvement and extension of streets and public roads, largely suspended during the period of war, have now been resumed and are being pursued with great activity, stimulated by the current market for municipal bonds which have become attractive by reason of their exemption from federal taxes. This activity of municipal construction results, of course, in increased traffic for a railroad, as well as in increased taxation.

Census returns are not yet sufficiently complete to report the growth in population in the South as a whole, but definite returns from twenty-nine of the more important cities of the South show an increase of 35.4% in the population of 1920 over that of 1910. It seems fair to assume that the South has doubled its population in the last forty-five years.

SERVICE OF EMPLOYEES.

The efforts of railroad management in the country generally to render the full measure of service required were hampered by strikes which followed closely upon the surrender of the railroads by the Government. With intense gratification we record the fact that our employees did not join in these strikes. They stuck steadfastly and loyally to their jobs, and to them are due, and heartily are tendered, the thanks of the stockholders as well as of the management.

The Directors, with deep regret, record the death on April 24, 1920, of their esteemed associate on the Board, Walter Kerr.

Respectfully submitted, by order of the Board,

FAIRFAX HARRISON,
President.

Table 1—INCOME STATEMENT

	1919.	1918.	1917.
Capital Stock:			
Corporate Income:			
Certified Standard Return under Federal Control Act	$18,653,893.15	$18,653,893.15	.....
Operating Income — Revised	.....	.....	$26,085,574.49
Income from Lease of Road	59,676.90	60,176.84	6,899.19
Miscellaneous Rent Income	233,091.68	243,333.27	148,559.18
Net Income from Rail Leased	53,787.87	41,163.18	40,360.75
Dividend Income	1,035,492.67	1,020,562.30	1,231,859.32
Income from Funded Securities	684,548.35	682,623.15	1,052,591 62
Income from Unfunded Securities and Accounts	158,840.44	129,317.94	469,149.03
Miscellaneous Income	4,688.91	1,556.74	107482.12
Total Corporate Income	$20,884,019.97	$20,832,626.57	$29,142,475.70
Deductions:			
Rent for Leased Roads	$2,400,254.73	$2,338,822.14	$2,135,499.86
Miscellaneous Rents	38,414.73	31,007.35	52,593.36
Separately Operated Properties	6,980.24	5,591.90	458,756.28
Interest on Unfunded Debt	668,985.12	42,295.81	70,482.08
Corporate Expenses	381,351.37	187,519.38	.....
War Taxes	426,343.91	574,006.75	612,910.74
Miscellaneous Income Charges	94,249.47	89,328.49	182,096.89
Total Deductions of this Class	$4,016,579.57	$3,268,571.82	$3,512,339.21
Total Available Income	$16,867,440.40	$17,564,054.75	$25,630,136.49
Interest on Funded Debt	$10,901,408.88	$10,947,490.00	$10,680,242.24
Interest on Equipment Obligations	598,456.24	681,643.89	686,471.03
Dividend on Southern Railway—Mobile and Ohio Stock Trust Certificates	226,008.00	226,008.00	226,008.00
Total Deductions of this Class	$11,725,873.12	$11,855,141.89	$11,592,721.27
Balance of Income Over Charges	$5,141,567.28	$5,708,912.86	$14,037,415.25
Dividend of 5% on Preferred Stock	3,000,000.00	3,000,000.00	3,000,000.00
Additions and Betterments Charged to Income	4,307.63	8,707.48	120,210.19
Balance Carried to Credit of Profit and Loss	$2,137,259.65	$2,700,205.38	$10,917,205.03

Table 2.—PROFIT AND LOSS.

Credit Balance December 31, 1918		$44,840,214.28
Add:		
Credit Balance of Income for the year		2,137,259.65
		$46,977,473.93
Deduct:		
Discount on Securities charged off during the year	$608,958.91	
Adjustment of Revenues and Expenses prior to January 1, 1918	212,609.01	
Net miscellaneous debits	267,528.55	
		1,089,096.47
Credit Balance December 31, 1919		$45,888,377.46

Table 3—GENERAL BALANCE SHEET

ASSETS

	December 31, 1919	December 31, 1918	December 31, 1917
Investments:			
Investment in Road	$342,931,751.85	$341,537,790.46	$341,175,564.34
Investment in Equipment	75,582,323.13	77,435,555.19	75,292,977.97
Total Investment in Road and Equipment	$418,514,074.98	$418,973,345.65	$416,468,542.31
Cash Deposited in Lieu of Mortgaged Property Sold	$2,072.50	.....	$5,000.00
Miscellaneous Physical Property—Rails and Fixtures leased to others	$691,282.43	$742,083.37	$708,385.28
Investments in Affiliated Companies:			
Stocks	$33,987,505.90	$34,187,445.90	$33,971,354.90
Bonds	28,304,459.04	28,300,459.04	28,300,459.04
Notes	1,948,782.84	2,001,885.91	1,989,004.59
Advances	2,813,956.73	2,532,310.95	2,503,518.32
Miscellaneous (Matured interest coupons)	.....	.....	18,825.00
Total Investments in Affiliated Companies	$67,054,704.51	$67,022,101.80	$66,783,161.85
Other Investments:			
Stocks	$347,972.00	$348,062.00	$298,222.00
Bonds	5,159,963.45	5,263,913.45	5,273,913.45
Notes	432,085.33	452,300.73	499,380.11
Advances for Purchase of Additional Equipment	.....	111,072.08	2,184,476.04
Total Other Investments	$5,940,020.78	$6,175,348.26	$8,255,991.60
Total Investments	$492,202,155.20	$492,912,879.08	$492,221,081.04
Current Assets:			
U. S. Government—Accrued Compensation (Balance)	$12,577,772.62	$16,153,893.15	.....
Cash	516,296.18	279,479.79	$7,445,217.08
Time Deposit	.....	.....	1,530,789.15
Special Deposits	3,195,578.10	3,236,059.80	2,951,472.95
Loans and Bills Receivable	2,077,770.05	1,545,917.63	1,515,665.99
Traffic and Car Service Balances Receivable	116,550.64	439,419.23	3,250,905.69
Balances due from Agents and Conductors	.....	.....	1,220,422.07
Miscellaneous Accounts Receivable	886,588.98	1,735,440.75	7,192,708.43
Material and Supplies	6,338.41	.....	10,250,687.63
Interest and Dividends Receivable	698,409.32	770,454.79	597,145.46
Other Current Assets	1,462,791.05	1,758,543.86	2,499,421.41
Total Current Assets	$21,538,095.35	$25,919,209.00	$38,454,435.86
Deferred Assets:			
Working Funds Advanced to Agents and Officers	$14,945.24	$41,205.08	$146,590.65
Liberty Bonds—Subscribed for Employes	.....	26,200.00	195,900.00
Cash and Securities in Insurance Fund	1,283,487.00	1,070,673.51	1,022,891.45
Cash and Securities Deposited under North Carolina Railroad Lease	175,000.00	178,600.00	178,600.00
Other Deferred Assets	840,800.35	93,713.16	119,873.74
Total Deferred Assets	$2,314,232.59	$1,410,391.75	$1,663,855.84
United States Government—Deferred Assets	$33,500,703.16	$32,018,343.89	.....
Unadjusted Debits:			
Insurance Premiums and Rents paid in Advance	.....	$8,677.05	$133,234.80
Unextinguished Discount on Funded Debt	.....	.....	182,434.60
Additions and Betterments Expenditures: Freight Claims: Foreign Mileage and Sundry Items in Suspense	$742,425.09	1,345,186.24	3,314,306.45
Total Unadjusted Debits	$742,425.09	$1,353,863.29	$3,629,975.85
United States Government — Unadjusted Debits	$18,512,875.97	$12,703,654.60	.....

Securities of the Company held by it:	1919	1918
Unpledged	$302,200.00	$223,200.00
Pledged	59,745,000.00	54,374,000.00
Total	$60,047,200.00	$54,597,200.00

Grand Totals	$568,810,487.36	$566,318,341.61	$535,969,348.59

LIABILITIES

	December 31, 1919	December 31, 1918	December 31, 1917
Capital Stock:			
Common	$120,000,000.00	$120,000,000.00	$120,000,000.00
Preferred	60,000,000.00	60,000,000.00	60,000,000.00
Total Southern Railway Company Stock	$180,000,000.00	$180,000,000.00	$180,000,000.00
Southern Ry.-Mobile & Ohio Stock Trust Certificates	5,650,200.00	5,650,200.00	5,650,200.00
Total Stock	$185,650,200.00	$185,650,200.00	$185,650,200.00
Long Term Debt:			
Funded Debt (Table 4)	$234,206,500.00	$235,402,500.00	$225,429,500.00
Equipment Trust Obligations (Table 5)	11,324,000.00	14,550,000.00	17,846,000.00
Total Long Term Debt	$245,530,500.00	$249,952,500.00	$253,275,500.00
Total Capital Liabilities	$431,180,700.00	$435,602,700.00	$438,925,700.00
Governmental Grants:			
Grants since July 1, 1914, in aid of Construction	$82,953.39	$82,628.39	$73,220.09
Current Liabilities:			
Loans and Bills Payable	$9,710,270.00	$8,579,480.00	$455,000.00
Traffic and Car Service Balances	38,885.47	605,953.72	1,982,322.00
Audited Accounts and Wages	89,658.17	444,323.85	12,521,524.91
Miscellaneous Accounts	196,261.88	379,166.25	1,734,504.14
Interest Matured, including interest due January 1	2,921,961.30	3,097,678.50	2,932,649.15
Dividends Matured—Unpaid	8,417.50	1,822.50	7,545.00
Funded Debt Matured—Unpaid	264,357.80	135,573.80	10,673.80
Dividends Accrued—Unmatured	56,502.00	56,502.00	56,502.00
Interest Accrued—Unmatured	1,801,372.83	1,661,102.53	1,669,852.96
Rents Accrued — Unmatured	182,331.08	195,664.33	289,322.57
Expenses, Accrued not vouchered	73,936.66	300,575.71	993,665.56
Other Current Liabilities	490,421.83	1,259,672.36	2,460,196.04
Total Current Liabilities	$15,834,376.52	$16,717,515.55	$25,113,758.13
Deferred Liabilities:			
Deferred Payments Account Reconstruction Rogersville Branch: Contractors' Per Cents Retained and Sundry Items	$380,200.52	$909,336.10	$816,545.10
United States Government—Deferred Liabilities	$34,167,073.69	$31,038,683.16	.....
Unadjusted Credits:			
Taxes	$509,584.09	$917,133.53	$976,848.49
Insurance Reserve	1,283,487.00	1,070,673.51	1,022,891.45
Operating Reserves	869,852.40	1,317,782.32	3,632,223.58
Car and Ticket Mileage Suspense	.....	.....	1,132,085.01
Depreciation accrued on:			
Rail Leased to Other Companies	123,686.92	111,308.52	95,114.27
Equipment Owned	20,676,414.38	18,612,515.89	16,941,357.50
Equipment Leased from Other Companies	493,705.51	342,525.32	349,676.11
Sundry Items	907,953.92	709,358.95	794,355.27
Total Unadjusted Credits	$24,864,684.22	$23,081,298.04	$24,944,551.68
United States Government Unadjusted Credits	$13,373,332.40	$11,080,758.65	.....
Corporate Surplus:			
Additions to Property since June 30, 1907, through Income and Surplus	$1,538,284.88	$1,464,703.16	$1,306,906.94
Reserve for 2½% Dividend on Preferred Stock	1,500,000.00	1,500,000.00	1,500,000.00
Miscellaneous	504.28	504.28	504.28
Total Appropriated Surplus	$3,038,789.16	$2,965,207.44	$2,807,411.22
Profit and Loss—Balance	$45,888,377.46	$44,840,214.28	$43,288,162.37
Grand Totals	$568,810,487.36	$566,318,341.61	$535,969,348.59

Railway Officers

Executive

Hiram R. McCullough, vice-president in charge of traffic of the Chicago & North Western, will retire January 1, after 47 years of railroad service, 40 years of which were spent with the Chicago & North Western. Mr. McCullough was born at Elkton, Md., on October 7, 1850, and was educated at Washington and Lee University. He entered railroad service in 1873, in the freight department of the Illinois Central. In 1880, he was appointed division freight agent of the Chicago & North Western, with headquarters at Winona, Minn., and from 1883 to 1885 he held a similar position at Chicago. On the latter date he was promoted to assistant general freight agent, retaining his former headquarters, and was made general freight agent in 1887. After 9 years of service as general freight agent Mr. McCullough was again promoted, being made general traffic manager. He has served continuously as vice-president in charge of traffic of the North Western for the past 22 years, having been elected to that position in 1898.

H. R. McCullough

A. C. Johnson, who has been elected vice-president in charge of traffic of the Chicago & North Western, succeeding H. R. McCullough, who will retire January 1, was born in Crawford County, Pa., on May 20, 1861, and was educated at Meadville (Pa.), College. He entered railway service in 1894 as a special agent on the Chicago & North Western, a position which he held until 1899, when he was appointed general agent of the company in South Dakota and Minnesota, with headquarters at Winona, Minn. In May, 1910, he was promoted to passenger traffic manager, with headquarters at Chicago, and served in this capacity until May, 1916, when he was promoted to general traffic manager. During the period of federal control, Mr. Johnson was appointed chairman of the Western Freight Traffic Committee, which was given jurisdiction over all freight matters in Western territory. Upon the reorganization of the Chicago & North Western personnel at the termination of federal control, Mr. Johnson again assumed his position as general traffic manager. He has been closely associated with Mr. McCullough, whom he now succeeds, throughout his entire railroad career.

A. C. Johnson

In accordance with the pension regulations of the Norfolk & Western, **L. E. Johnson,** chairman of the board, **W. G. MacDowell,** assistant to the president, and **T. S. Davant,** vice-president in charge of traffic, will retire on December 31. The jurisdiction of **A. C. Needles,** vice-president in charge of operation, will be extended to include the traffic department.

F. P. Brady, whose appointment as assistant to the executive of the Canadian National was announced in the *Railway Age* of December 10 (page 1046), was born June 22, 1853, at Haverhill, N. H., and entered railway service in 1869 as a station baggageman on the Passumpsic (now part of the Boston & Maine). Subsequently he became a telegraph operator, despatcher and chief despatcher. In 1888 he went to the Canadian Pacific as trainmaster and the following year was promoted to assistant superintendent. In 1898 he was appointed superintendent and served in that capacity on several divisions. In 1903 he was promoted to assistant general superintendent with headquarters at North Bay, Ont. Mr. Brady left the Canadian Pacific in 1908 to become a member of the Canadian Government Railway Board of Management, serving at the same time as a general superintendent of the Canadian Government Railways. In 1913 he left the Railway Board but remained in his position on the Government Railways. In 1917 he was promoted to general manager, Western Lines, of the Government Railways. In 1918 he went to the Canadian Northern (which subsequently became a part of the Canadian National) in the same capacity and continued in that position until his recent promotion.

F. P. Brady

Operating

C. G. McCaulley, assistant superintendent of the Jacksonville Terminal, has been appointed superintendent, effective December 10.

J. W. Whitaker, general yardmaster of the Southern at Chattanooga, Tenn., has been appointed superintendent of terminals, with the same headquarters. Mr. Whitaker was born September 11, 1871, at Panola, Ga., and was educated at Flakes Academy, De Kalb County, Ga. He entered railway service in 1895 as a switchman on the Southern at Atlanta, Ga. Three years later he was promoted to yard conductor and, in 1904, to assistant general yardmaster at Chattanooga. The following year he became general night yardmaster and, in 1910, general yardmaster and remained in that position until his recent promotion.

J. W. Whitaker

R. E. Beach has been appointed chief despatcher of the Salt Lake division of the Southern Pacific, with headquarters at Sparks, Nevada, effective December 16, succeeding F. F. Small, resigned.

W. G. Powell has been appointed general manager of the Dansville & Mt. Morris, with headquarters at Dansville, N. Y., effective December 1.

G. W. Holdrege, general manager of the Chicago, Burlington & Quincy, lines west of the Missouri River, with headquarters at Omaha, Neb., will retire on January 1, after 51 years of continuous service with the Burlington. Mr. Holdrege was born on March 26, 1847, at New York city, and was educated at Harvard University, graduating in the class of 1869. He entered railway service in December, 1869, as a clerk in the general offices of the Burlington & Missouri River, now part of the Burlington. After serving as a clerk in the train service department, he became successively trainmaster, assistant superintendent, superintendent and assistant general manager. He has been general manager of the Burlington lines west of the Missouri River for the past 17 years, having been promoted to that position in July, 1903.

P. L. Gaddis, whose appointment as assistant superintendent of transportation of the Florida East Coast was announced in the *Railway Age* of December 10, 1920 (page 1046), was born March 20, 1886, at Jasper, Ga. At the age of twelve he began his railroad career as a water boy on the Marietta & North Georgia (now part of the Louisville & Nashville). In 1900 he became a telegraph operator for the same company at Apalachia, Tenn. In 1903 he went to Palatka, Fla., in the same capacity with the Plant system (now a part of the Atlantic Coast Line). He became chief operator and stationmaster for the Atlantic Terminal in the following year and resigned that position in 1905 to enter the mining business in Mexico, where he remained until 1915. Upon his return to this country he entered the service of the Florida East Coast as a telegraph operator. Subsequently he was promoted to despatcher, chief despatcher and trainmaster, which last position he was occupying when his latest promotion occurred.

Traffic

W. F. Griffitts, general passenger agent of the Delaware, Lackawanna & Western at New York, has been appointed passenger traffic manager with the same headquarters, effective December 20.

K. B. Hannigan, assistant general feight agent of the Southern at St. Louis, Mo., has been promoted to general freight agent, with the same headquarters,, effective December 1, succeeding R. A. Campbell, deceased.

H. Bierman, freight claim agent on the Missouri, Kansas & Texas, with headquarters at Parsons, Kan., has been promoted to general claim agent of the Missouri, Kansas & Texas Railway of Texas, with headquarters at Dallas, Tex. **W. H. Geagan** has been appointed freight claim agent with headquarters at Dallas. **J. W. Finucane** succeeds Mr. Bierman.

Mechanical

W. A. George has been appointed master mechanic of the Jacksonville Terminal, effective December 10.

J. W. Lemon, master mechanic on the Central Kansas division of the Missouri Pacific, with headquarters at Osawatomie, Kan., has been transferred to the Colorado division, with headquarters at Hoisington, Kan., effective December 15. **S. L. Landis** has been appointed acting master mechanic succeeding Mr. Lemon.

Engineering, Maintenance of Way and Signaling

H. L. Newman, whose appointment as maintenance engineer of the Pittsburgh, Shawmut & Northern was announced in the *Railway Age* of December 20, 1920 (page 1002), was born May 12, 1886, at Randolph, N. Y. He was educated at the Randolph High School and entered the service of the Pittsburgh, Shawmut & Northern as a draughtsman in the chief engineer's office in 1906. Subsequently he served as a rodman and levelman. In 1911 he was appointed general foreman of maintenance and in 1912 transitman. The following year he became chief draughtsman. In 1918 he was placed in charge of all engineering, including valuation and location, and was serving in this capacity at the time of his appointment as maintenance engineer.

Purchasing and Stores

E. T. Burnett, general purchasing agent of the Norfolk & Western, will retire from active service on December 31.

Special

G. A. Hoverstad, development agent on the Minneapolis, St. Paul & Sault Ste. Marie, has been appointed development agent on the Chicago Great Western, with headquarters at Chicago, effective December 16. He has been given jurisdiction over agricultural development, location of new industries and immigration.

Obituary

James J. Reynolds, consulting engineer of the Elgin, Joliet & Eastern, whose death was announced in the *Railway Age* of December 3 (page 1002), was born at Cincinnati, Ohio, on September 12, 1855. Mr. Reynolds began his engineering career as a chainman with a field corps in the employ of the city of Cincinnati. He entered railroad service with the Illinois Central in 1886 and after three years with that road became associated with Joseph Torrence in the construction of the Calumet Terminal Railroad and the Chicago Terminal Transfer Railroad. In 1897 he entered the employ of the Snoqualmie Power Company, assuming charge of a project at Snoqualmie Falls, Wash. In 1900 he entered the service of the Chicago, Indiana & Southern, being associated with that company until 1906, when he was employed by the Elgin, Joliet & Eastern, having charge of the work of relocating and constructing additions to the line when the United States Steel Corporation decided on Gary, Ind., as a site for steel mills. From 1911 to 1914 Mr. Reynolds was a member of the Harbor and Subway Commission of the city of Chicago. Upon the completion of his work with this commission he returned to the Elgin, Joliet & Eastern as consulting engineer, the position which he was occupying at the time of his death.

THE ROADS ARE STILL SICK, still depleted by government folly. They have still to recover half a billion from the Treasury. They need financial nourishment if they are to recover.—*N. Y. Evening Sun.*

Photo by Ewing Galloway

Coaling Greater New York—Storage Yard of an Electric Power Company, Containing 240,000 Tons